AMATEUR RADIO

Vol 52, No. 6, June 1984

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

Computer programme for Novice contest
Try a BF981 in A 2 metre preamp
Mini report of 48th Convention
Capacity measurement
Meet the new Federal Treasurer.

Ready for a new challenge?

Build yourself a 2m transceiver

So many amateurs who built our UHF 'Explorer' kit have written in and asked us for more. They were delighted to be able to build something again – instead of buying a 'black box'! But they wanted more . . .

Here it is: A brand new all-Australian designed 144-148 MHz build-it-yourself transceiver: the VHF Commander from Dick Smith Electronics.

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Brief Specifications

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Mode:	F3, up to 10kHz deviation (normal operation 5kHz)
Supply:	12-15V DC, 110mA-300mA receive, 2.5A transmit
Power output:	10W minimum, typical 15W or more
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Sensitivity:	Max 0.5uV for 12dB SINAD (typically 0.4uV)
Selectivity:	60dB at ±25kHz
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As described in Electronics Australia, June 1984 issue

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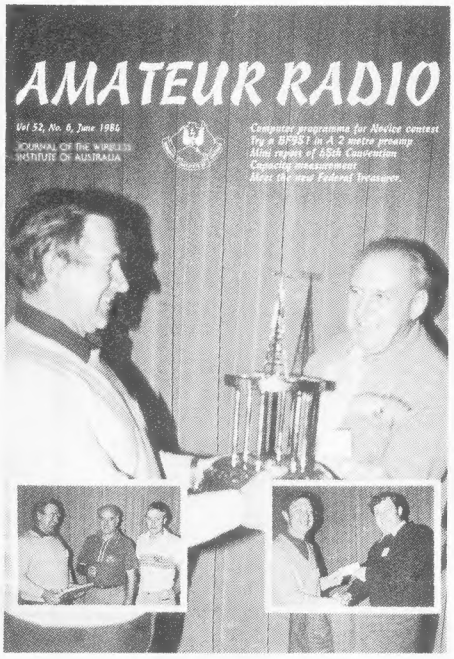

From the 48th Annual WIA Convention. Main photograph — David VK3ADW, Federal President, presents the 1983 RD Trophy to Henry VK8HA. Small photograph right — Bruce VK3UV, Immediate Past Federal President, presents Life Membership of the WIA to Peter VK3KAU, himself a former President. Small left — David VK3ADW welcomes NZART visitors to the Convention. L-R David, Don ZL3RW/VK3BXF and Craig ZL3TLB.

Photographs by Ken McLachlan VK3AH.

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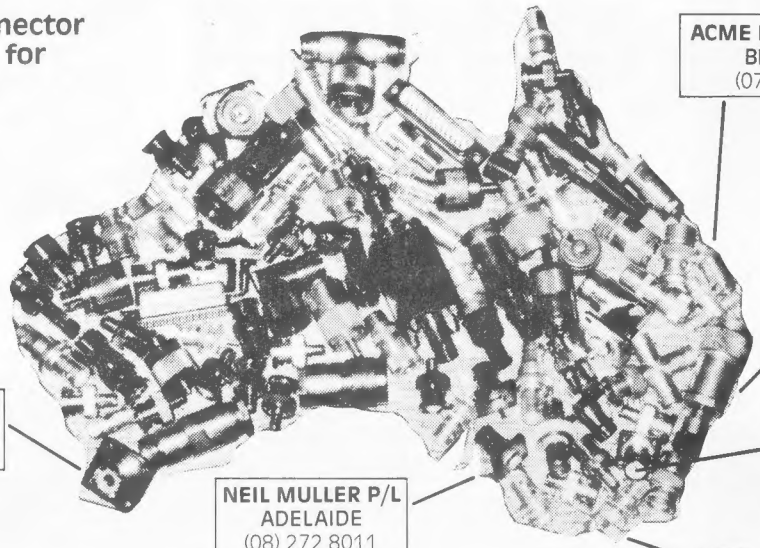

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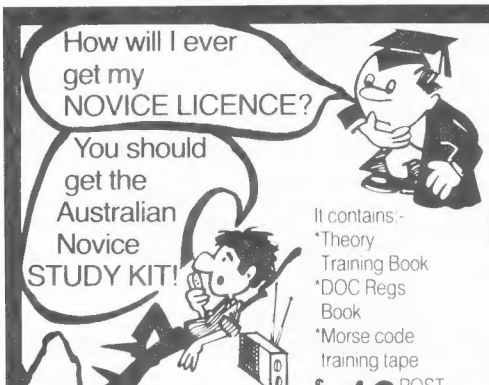

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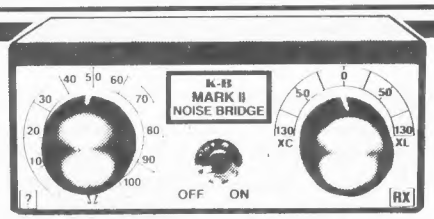

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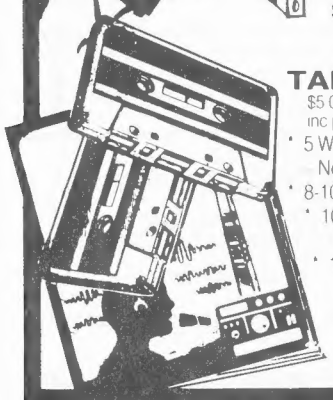

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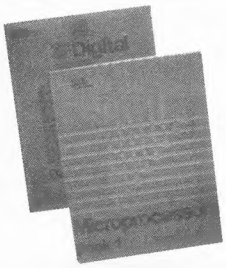

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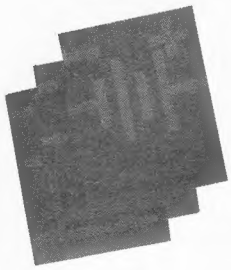

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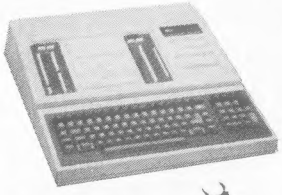

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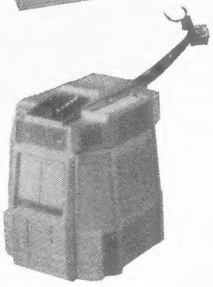

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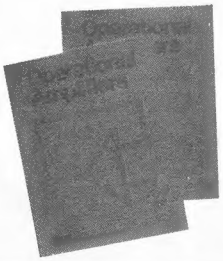

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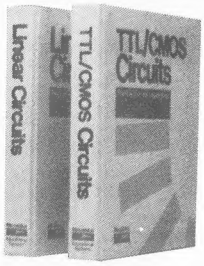

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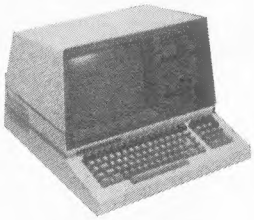

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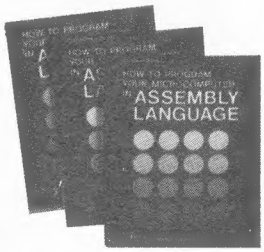

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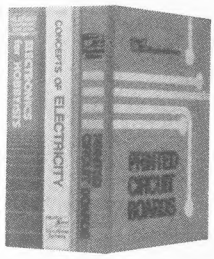

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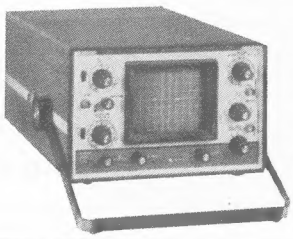

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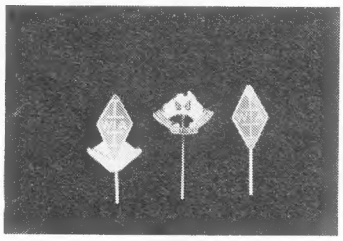

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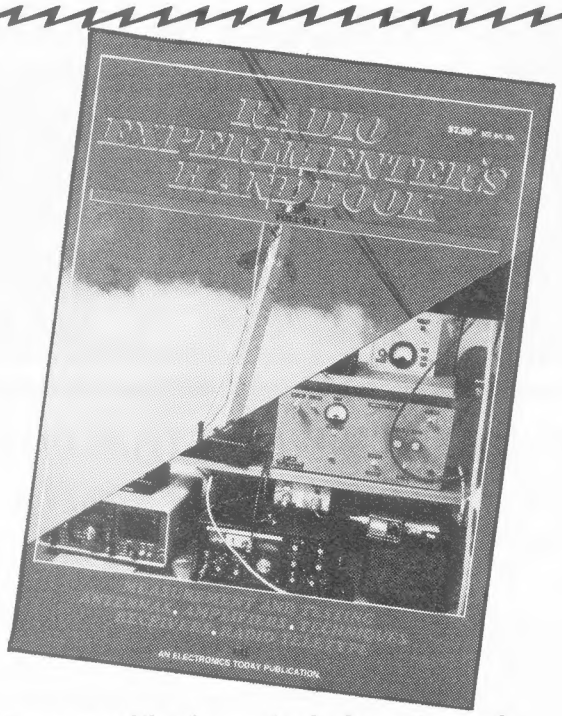

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Edited by Roger Harrison, VK2ZTB, this book carries a wealth of practical, down-to-earth information useful to anyone interested in the art and science of radio. $7.95 from your newsagent or through selected electronics suppliers. It is also available by mail order through **ETI Book Sales, P.O. Box 227, Waterloo NSW 2017** (please add $1.75 post and handling when ordering by mail).

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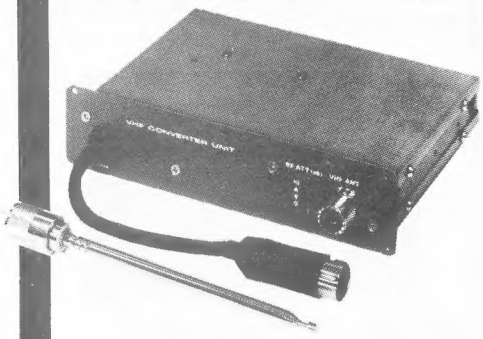

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ELECTRON 2000 — 3 ELIZABETH STREET, TIGHES HILL, NEWCASTLE (049) 69 6399
MACELEC PTY. LTD. — 99 KENNY STREET, WOLLONGONG (042) 29 1455
RADIO WORLD PTY. LTD. — 81 NEWCASTLE STREET, FYSHWICK (062) 80 6550
E&K COMMUNICATIONS — 14 DUTTON STREET, DICKSON A.C.T. (062) 49 6437
DX ENGINEERING — 5 JASMINE STREET, PORT MACQUARIE (065) 83 2175
LAND LINK — MULLALEY ROAD, GUNNEDAH (067) 42 2838
LAND LINK — 61 BARNES STREET, TAMWORTH (067) 65 4622
FRANK BOUNDY — LISMORE (066) 86 2145

INTERSTATE

VIC: EASTERN COMMUNICATIONS — 168 ELGAR ROAD, BOX HILL (03) 288 3107
BRIAN STARES — 11 MALMSBURY STREET, BALLARAT (053) 39 2808
SUMNER ELECTRONICS — 78 KING STREET, BENDIGO (054) 43 1977
TAS: HOBBY ELECTRONICS — 477 NELSON ROAD, MT. NELSON (002) 23 6751
GELSTON ELECTRONICS — SUMMER HILL (003) 27 2256
WATSONS WIRELESS — 72 BRISBANE STREET, HOBART (002) 34 4303
ADVANCED ELECTRONICS — 5A THE QUADRANT, LAUNCESTON (003) 31 7075
MARINE & COMMUNICATION — 19 CHARLES STREET, LAUNCESTON (003) 31 2711
V.K. ELECTRONICS — 214 MOUNT STREET, BURNIE (004) 31 7733
QLD: MITCHELL RADIO CO — 59 ALBION ROAD, ALBION (07) 57 6830
S.A. & N.T.: INTERNATIONAL COMMUNICATIONS SYSTEMS PTY. LTD. — 8 NILE ST., PORT ADELAIDE (08) 47 3688
W.A.: ARENA COMMUNICATIONS SERVICES — 642 ALBANY HWY., EAST VICTORIA PARK (09) 361 5422
TRI-SALES — CNR NEWCASTLE & CHARLES STREETS, PERTH (09) 328 4160
WILLIS ELECTRONICS — 445 MURRAY STREET, PERTH (09) 321 2207
BAY RADIO — 18 BANKSIA STREET, BUNBURY (097) 21 2236
RON DENT — 115 PATON ROAD, SOUTH HEADLAND (091) 72 1112
SELECT TRONIX — TOM PRICE (091) 89 1564
FORD ELECTRONICS — 209 HANCOCK STREET, DOUBLE VIEW (09) 446 4705

a word from your EDITOR

This month I hand over to a new editor. I wish him every success with the magazine. I am sure Amateur Radio will continue to improve and evolve as it has done over past years.

During last year I became a diabetic. I received excellent medical and nursing care for which I am very thankful. However a changed lifestyle and altered availability of time have meant that I can no longer devote the time required to Amateur Radio. Treatment is very much improved today and I feel better than I have for a long time. However my free time has shrunk and I would still like to be able to get on the air.

Amateur Radio is a very demanding job. It is a major expenditure of the Institute. The quality of the magazine both in presentation and content is most important to all members.

The technical content of the magazine is most important. Both articles for newcomers and advanced experimenters must be published. Many varied interests and facets of the hobby must be catered for.

You can help ensure the continued excellence by writing for Amateur Radio. You can also help by getting others to write for Amateur Radio. Often the developer or inventor of an idea just needs a nudge from a friend, to write about it. Amateur Radio is in constant need of these articles.

News and photographs are another way in which you can contribute. Photographs let other amateurs see you and the things you are doing. Load up your camera and record events, and send a photograph to Amateur Radio.

Remember it is your magazine, not something put together by the faceless few. Contribute to it so that Amateur Radio can reflect the true face of your hobby.

Gil Sones, VK3AUI
Editor
AR

QSP

MEET THE NEW FEDERAL TREASURER
ROSS BURSTAL — VK3CRB

The Institute now has a new Federal Treasurer — Ross Burstall who has taken over from Courtney Scott VK3BNG. Courtney has been treasurer for a number of years, but now feels the need to step aside to pursue his hobby.

Ross has been interested in amateur radio since the age of ten but due to moving around Australia in his occupation, interspersed with getting married etc, it took another thirty four years before Ross settled down to obtain a ticket.

Ross works for Westpac Banking Corporation, presently employed as manager of the Brunswick, Victoria Branch and his experience in banking has included working in NSW, SA, Vic and the Fiji Islands, in a variety of positions from Personnel Training, Marketing, Administration and Branch work.

Ross' ideas and philosophies in the role of Federal Treasurer encompass it being necessary for all members of the Institute to go out of their way to attract new members. This will be necessary to share the burden of expenses incurred. From the annual subscription paid by each member approximately $12 is used for Amateur Radio magazine, $11 for the Federal Executive and the remainder is handed back to the divisions for effectively conducting their respective offices.

If we do not increase our membership from approximately 8300 to 9000 (there are around 15 000 amateurs in Australia) subscriptions will have to go up to meet added costs caused by inflation, wage increases etc.

Ross welcomes the challenge of Treasurer and hopes that you, the member, will support the Executive in their endeavours to increase membership significantly.

AR

WIA NEWS

QUIETER AND MORE EFFICIENT RADIO OPERATIONS INTRODUCED

New measures to be introduced by the Department of Communications will make life quieter and more efficient for many radio operators in Australia.

The measures, known as Quiet Base (QB) operations, will make it mandatory for all new mobile stations, personal mobile stations and radio frequency control stations using the VHF and UHF land mobile service to be fitted with selective calling devices from 1 July 1984.

A spokesman for DOC says the measures also provide for all new base station equipment to be fitted with decoding facilities.

These new measures will replace technical specification RB276, introduced in January 1976, under which use of selective calling devices was voluntary.

Owners of equipment now in use, however, will have until 1995 to incorporate the new devices. This is to ensure that owners can obtain the full operational life out of their present equipment before upgrading their facilities to QB status.

QB facilities mean that operators do not have to monitor radio equipment constantly to select their own messages. Nor do they have to put up with noisy radio traffic not intended for them.

Elimination of this interference will allow more productive use to be made of the radio frequency spectrum, which will ultimately allow base stations to be more closely spaced, enabling more services to share the land mobile frequency bands.

The system works by an encoding/decoding process. Manufacturers arrange for each operator to be assigned a specific calling tone or digital signal which activates the receiver's loud speaker system when a message is to be relayed.

To ensure that the operator of a quiet base station does not inadvertently jam traffic he cannot hear, a preview (or "listen before calling") device is provided in conjunction with the QB operation. This activates the loud speaker system even in the absence of the correct enabling tone or code so that the operator can determine whether anyone else is using the frequency.

Another measure, the use of Time Out Timers (TOTs), will prevent congestion or unnecessary disruption of the system. TOTs automatically shut down a transmitter after a continuous operation of sixty seconds. This prevents a long transmission from adding to congestion in the network, or the inadvertent jamming of a channel by a transmitter being accidentally left activated.

QB and TOT operation is governed by a recently issued addendum to the relevant specification for the parent land mobile radio equipment.

Any relevant parts of technical specification RB276 not covered by the new measures have been incorporated into other technical specifications. **AR**

TELEVISION DUAL SOUND

Following the concern shown by many amateurs after the Minister for Communications announced the approval of Stereo Television for Australia, the WIA Federal President wrote to the Minister expressing concern for the amateur bands and asking for clarification.

The following is Mr Duffy's reply.

It will be appreciated that this announcement was the first step in a chain of events which includes the careful consideration on a case by case basis of the proposed modification of transmitting station equipment to meet the new technical standard before authorisation to transmit is given. In particular, the effects on adjacent radiocommunication services of any increase in occupied bandwidth by the TV channel beyond the nominal 7 MHz will be examined carefully.

Potential mutual interference problems, namely emission from television into the other service receiver and from the other service into TV receivers, have always existed at the band edges, resulting in a small percentage loss of usable bandwidth by the non-Broadcasting Service in the service area of any particular TV channel. Any increase in this percentage loss of spectrum following introduction of TV dual sound, for which lower power levels than for the mono sound channel are specified, will be minimised by measures such as strict control of deviation and adoption of beneficial carrier offset options.

Mr Duffy would also like to point out that there is as yet no decision to introduce the dual sound system to the national and SBS services which represent all but two Channel O services and which also account for two-thirds of Channel 5A services. Furthermore, the Melbourne and Sydney SBS Channel O services will terminate on 31 December 1984 and the dual sound system is therefore unlikely to be introduced on these transmissions in any event.

In the interests of making available this advance in broadcasting technique to the general public Mr Duffy asks members to accept any small inconvenience to your service which might occur in some geographical areas. **AR**

QSP

DUAL-SOUND TELEVISION TO START IN SYDNEY AND MELBOURNE

Two television stations in Sydney and Melbourne have begun broadcasting in dual-sound, or stereo, following approval by the Minister for Communications, Mr Michael Duffy, of alterations to technical equipment.

TCN Channel 9 (Sydney) and GTV Channel 9 (Melbourne) officially started their stereo transmissions on 27th March 1984.

Approval of alterations to enable a station to transmit in stereo are required under the Broadcasting and Television Act, 1942. **AR**

RELATIVITY

Had air fares fallen at the same rate as computing power it would now be possible to fly to Sydney for one cent.

WARNING

The writing is on the wall for graffiti.

INFLATION PROOF

You can still use a one cent piece as a screwdriver.

from Break-In April 1984

ANNUAL CONVENTION — 48th

The 48th Annual Convention was held over the weekend 28, 29 and 30th April in Melbourne. Delegates from all divisions of the Institute, an observer from VK8 (Darwin) and the Executive were in attendance.

Necessary business, adoption of reports and financial statements were followed by the election of an executive for the next twelve months.

We now have a new president, Dr David Wardlaw VK3ADW. David has held the position in previous years, is a senior negotiator on behalf of the Institute at governmental level. He has also attended many overseas conferences on the radio spectrum, as a member of Australian governmental delegations and as IARU Liaison Officer.

Some major items discussed were —

CW and narrow band modes. A policy statement covering narrow band modes (other than CW) will be published shortly, revised band plans will follow.

The Institute's memorandum and Articles of Association. A legal committee has been set-up to investigate and report on any changes that may be required.

Packet Radio — Standardisation of Packet Radio format and procedures were discussed and the need for conformity recognised.

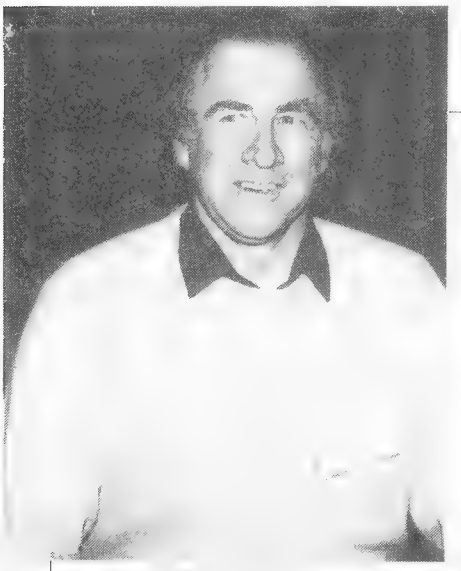
Seventy-fifth anniversary of the Institute founding. Discussions took place on how the Institute and its members can celebrate this event.

Computerisation. A decision was made to purchase an "in house" computer system to handle the Executive Office's membership records and accounts.

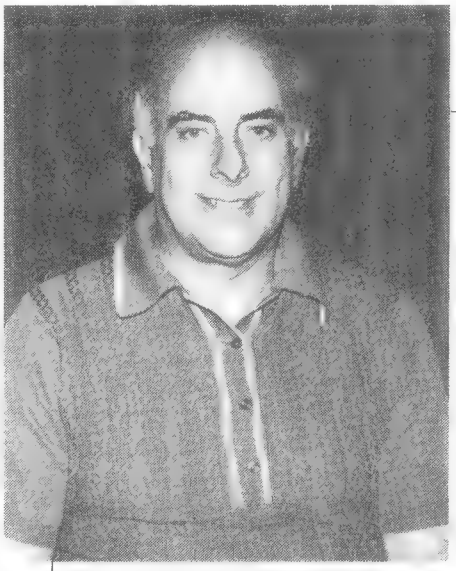
The Convention was attended by two NZART officials as observers.

Presentations of Life Membership was made to Peter Wolfenden VK3KAU and the RD Trophy to Henry Andersson VK8HA.

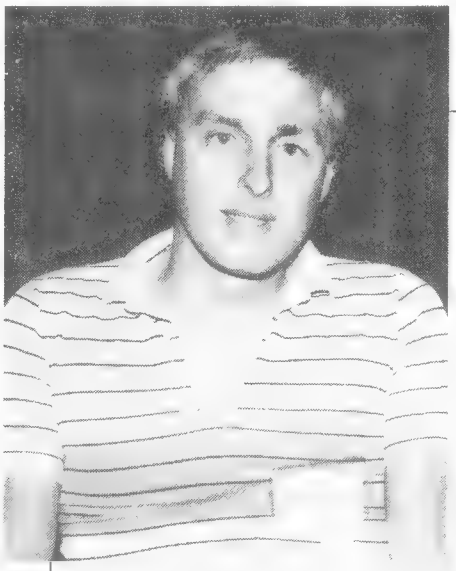
The formal convention report will be published in following editions of AR.



David Wardlaw VK3ADW
Federal President



Don MacKay ZL3RW/VK3BXF
President NZART



Craig Crawford ZL3TLB
Technical Editor Break-In Magazine

from "The Propagator" April 1982.

See centre pages for some of the visitors attending the 48th Annual Convention

A COMPUTER PROGRAMME FOR THE VK NOVICE CONTEST

Neil Cornish, VK2KCN
56 Sherwin Avenue, Castle Hill, NSW 2154

There are many problems with a computer in the shack mainly due to interference from the computer in the receiver. Many contesters would rather get writers cramp and avoid missing the very weak station in the QRM. However most of the noise can be eliminated so contesting can be fun and easier with the computer on the side.

This article deals with a BASIC programme for the VK Novice Contest usually held in September each year. It is written for the Commodore 64 with a Printer attached but can be adapted to any computer with a BASIC compiler. I found that the C64 had the one thing that contesters need — HEAPS OF ON-BOARD MEMORY!

With about 39 k of user RAM the C64 will easily store the whole log of a major contest but in this programme the printer writes the log at the end of each contact. Some of you may disagree with this method preferring to store the log for later printing and thus avoid audio QRN in the shack from the printer. I find that whilst my dot matrix printer is as noisy as most, the noise comes at the time that I am signing one contact and calling QRZ for the next so with earphones on I hardly know it's there.

```
1983.
SEPT.GMT  CALLSIGN     BAND MODE TX#   RX#   POINTS

 10  0800  VK2NBA      1.5  SSB 59001 59002  5
 10  0800  VK2NAB      1.5  SSB 59002 59002
 10  0900  VK2NBS      1.5  SSB 59003 59001  5
 10  0801  VK2NLH      1.5  SSB 59004 59007  5
 10  0802  VK2BAD      1.5  SSB 59005 59002  10
 10  0803  VK2KI       1.5  SSB 59006 59004  10
 10  0842  VK2AB..     1.5  SSB 59007 59007  5
 10  0900  VK2NN       1.5  SSB 59008 59003  5
 10  0903  VK2NCW      1.5  CW  59009 59002  5
 10  0930  VK2NEB      1.5  SSB 59010 59009  5
 10  0807  VK2KTP      1.5  SSB 59011 59007  5
```

The programme follows the VK Novice Contest rules and prints the log accordingly. (See example.) As is the way with most contest QSOs all contacts are five and nine. Purists may write their own subroutine to give varying signal reports. CW operators should alter the value of NT to 599000 in lines two and 920, together with line 940 where "SSB" becomes "CW".

The programme is fairly forgiving if you make typing errors in callsign input. Typing the * symbol at the end of the input of either the callsign or the "Received Number" will abort the entry. A common contest typing error is to miss out the area number in the call or to miss the prefix altogether when working in a domestic contest like the Novice or RD contests. This programme forgives you and restarts the entry automatically.

Enter ← for a callsign to change the band or enter # for a progress score on the screen.

My printer uses ten inch fan-form paper so each page takes about fifty lines plus the heading. The programme counts the lines in line 150 (LC = line count) and when fifty lines are used it prints the page tally, as required in the rules, and then pauses while you check the paper line-up.

Checking for duplicates is accomplished

```
0 REM * VK NOVICE CONTEST FOR COMMODORE 64 & PRINTER * NEIL CORNISH VK2KCN 1983
1 REM
2 PRINT"□":OPEN3,4:NT=59000
10 DIMA$(100),B$(100),C$(100),D$(100),E$(100),F$(100),G$(100),H$(100),I$(100)
11 DIMJ$(100),K$(100),L$(100),M$(100),N$(100),O$(100),P$(100),Q$(100),R$(100)
12 DIMS$(100),T$(100),U$(100),V$(100),W$(100),X$(100),Y$(100),Z$(100)
50 PRINT"■ VK NOVICE CONTEST ■":INPUT"■ENTER DATE DD.MM.YY.";DA$
52 IFLEN(DA$)<>9THEN50:                          REM ** CHECKS DATE INPUT ERROR
60 PRINT"■ENTER GMT HHMMSS":
65 INPUTTI$
70 CT$="VK NOVICE CONTEST 19"+RIGHT$(DA$,3)
80 INPUT"■ YOUR CALLSIGN  ";YC$
100 GOSUB700:GOSUB1250:GOTO200
150 GOSUB900:TS=TS+BS:LC=LC+1:IFLC>49THENGOSUB1240:LC=0
200 INPUT"■ CALLSIGN ■";CS$:PRINT"□":GOSUB880
205 IFRIGHT$(CS$,1)="*"THEN200
210 IFCS$="←"THENPRINT#3:GOSUB700:GOTO200
212 IFCS$="#"THENGOSUB980:GOTO200
215 IFLEN(CS$)<4THEN219                          REM ** CHECKS SOME TYPING ERRORS
217 FORAV=2TO3:IFASC(MID$(CS$,AV,1))<58THEN220
218 NEXTAV
219 PRINTCS$,"■BAD CALLSIGN■":GOTO200
220 SC$=CS$+BA$                                  REM ** STORED CALL=CALL+BAND
230 SP=ASC(MID$(CS$,5,1))-64                     REM ** SORTS CALLS BY 5TH LETTER
235 IFSP<10ORSP>26THEN214
240 ONSPGOTO310,320,330,340,350,360,370,380,390,400,410,420,430
250 SP=SP-13:ONSPGOTO440,450,460,470,480,490,500,510,520,530,540,550,560
309 REM                                          REM ** 5TH LETTER = A
310 A=A+1:A$(A)=SC$:IFA=1THEN314
311 FORII=1TOA-1:IFA$(A)=A$(II)THENA=A-1:GOSUB1100:GOTO200
312 NEXTII
314 GOSUB600:GOSUB800:IFNR=0THENA=A-1:GOSUB1000:GOTO200
316 GOTO150
319 REM                                          REM ** 5TH LETTER = B
320 B=B+1:B$(B)=SC$:IFB=1THEN324
321 FORII=1TOB-1:IFB$(B)=B$(II)THENB=B-1:GOSUB1100:GOTO200
322 NEXTII
324 GOSUB600:GOSUB800:IFNR=0THENB=B-1:GOSUB1000:GOTO200
326 GOTO150
329 REM                                          REM ** 5TH LETTER = C
330 C=C+1:C$(C)=SC$:IFC=1THEN334
331 FORII=1TOC-1:IFC$(C)=C$(II)THENC=C-1:GOSUB1100:GOTO200
332 NEXTII
334 GOSUB600:GOSUB800:IFNR=0THENC=C-1:GOSUB1000:GOTO200
336 GOTO150


600 NT=NT+1:IFNT>59999THENNT=NT-999:             REM ** GENERATE NEXT EXCHANGE
620 PRINTCS$,TAB(10)NT:RETURN
700 FORBA=1TO3:READBD$(BA):                      REM ** SELECT BAND
710 IFLEN(BD$(BA))<4THENBD$(BA)=BD$(BA)+CHR$(32):GOTO710
720 PRINTBD$(BA)"...",BA:NEXT
725 PRINT"■■ SET PAPER IF NECESSARY THEN, ■"
730 RESTORE:PRINT"■■ SELECT THE BAND NUMBER ■"
740 GETBA$:IFBA$=""THEN740
750 BA=VAL(BA$):PRINT"■BAND= ";BD$(BA)"MHZ"
760 LC=LC+1                                      REM ** UPDATE PRINT LINE COUNT
765 GOSUB1110:RETURN
790 DATA3.5,21,28
800 INPUT"■RECEIVED NUMBER■";NR$:NR=VAL(NR$):IFNR<1OR>42THEN890
805 IFLEN(NR$)<3THENNR$=NR$+CHR$(32):GOTO805
810 S$=LEFT$(NR$,2):MID$(CS$,2,1)=S$             REM ** FULL CALL SORTS.
811 IFLEN(CS$)<4THEN814                          REM ** 2 LETTER SUFFIX=FULL CALL
812 IFNR<100ORNR>500THEN800:GOTO814              REM ** NOVICE SORTS.
814 IFRIGHT$(NR$,1)="*"THEN800:RETURN            REM ** CLUB=10PTS.
830 PRINT"□"TAB(12)NR$
820 FORTT=1TO29:PRINT:NEXTTT:PRINT"□":           REM ** SPACE OVER A LINE
835 RETURN
890 NR=0:RETURN
940 REM                                          REM ** PRINT LOG
941 IFLEN(CS$)>11THEN942:CS$=CS$+CHR$(32):GOTO910  REM ** IF CALL IS LETTERS LONG
942 IFNT>59999THENNT=NT-999                      REM ** RESET EXCHANGE
925 DA=VAL(LEFT$(DA$,2))                         REM ** GMT DATE FOR LOG
926 IFVAL(LEFT$(TI$,4))<0000THEN:DA=DA+1         REM ** ALTERS DATE AT 0000HRS GMT
930 CMD3
940 PRINT#3,DA;TAB(1);LEFT$(TI$,4);SPC(2);CS$;BD$(BA);" SSB";NT;NR$;BS;
945 RETURN
980 GOSUB880:PRINT"■TOTAL SCORE■";TS:RETURN: REM ** PROGRESS SCORE
1000 PRINT"□□□":FORII=1TO2:GOSUB880:NEXTII
1010 PRINTCS$;TAB(10)"■NEGATIVE■":NT=NT-1:GOSUB880:RETURN
1100 PRINTCS$;TAB(10)"■DUPLICATE■":RETURN
1110 PRINT"■■ TO CHANGE BAND ENTER ■  ←":PRINT"■   ON CALLSIGN PROMPT ■"
1120 PRINT"■■   FOR SCORE, ENTER ■  # ":PRINT"■ ON CALLSIGN PROMPT ■"
1130 PRINT"■■TO ABORT THE CONTACT, ENTER ■  *"
1140 PRINT"■ AS LAST LETTER OF CALLSIGN ■"
```

```
1150 PRINT"■      OR IF THE NUMBER REC'D ■":PRINT RETURN
1240 PT=TS-PX:PX=TS:PRINT#3:PRINT#3,CHR$(15)"PAGE TALLY ";PT
1241 PRINT"■ NEW PAGE....LINE UP PAPER & ENTER <!> ■"
1242 GETGE$:IFGE$=""THEN1242
1244 IFGE$<>"!"THEN1241
1246 GOTO1255
1250 PRINT#3:PRINT#3,CHR$(14)CT$"   LOG OF ";YC$:PRINT#3
1255 PRINT#3,CHR$(15)"19",RIGHT$(DA$,3)
1260 PRINT#3,"SEPT.GMT  CALLSIGN    BAND MODE TX#   RX#   POINTS":RETURN
```

very quickly even if hundreds of calls are worked. Calls are sorted into twenty six dimensioned arrays according to the fifth letter of the call. Thus the computer compares calls such as VK2KCN only with other calls with C as the second letter of the suffix.

Thus callsign comparison is reduced to approximately 1/26th of the time needed if all calls were compared.

Well good luck in the contest . . .

Note: *For this article, a large part of the programme is not listed to save space.*

In line 230 the ASCII of the fifth letter of the callsign is found and assigned the variable SP. In lines 240 and 250, SP is used to sort and compare with callsigns of the same fifth letter.

Where the fifth letter is A the programme goes to the comparison routine for calls with A as the fifth letter in lines 310 to 316.

For calls with B as the fifth letter the comparison routine is in lines 320-326 and for C in lines 330 to 336.

Similarly comparison routines for letters D to Z must be written into the programme in routines in lines 340 to line 566.

AR

CAPACITY MEASUREMENT

Eric Vass, VK5AEV, ex G8AD
10 Shaftesbury Terrace, Marino, SA 5049

As an alternative to the bridge method of measuring capacitors, the method to be described has the advantage of simplicity, a high order of accuracy, and is non critical.

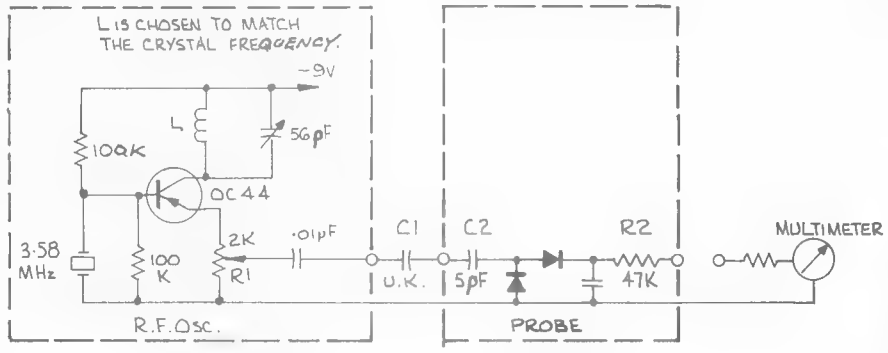


Diagram 1

All that is required is an RF oscillator with an adjustable output, a simple RF probe, and a multimeter, preferably one with a high resistance on the DC ranges.

The oscillator shown in the diagram is one which I had available, and is useful in providing harmonics on the amateur bands, however crystal control is of course not necessary.

The only critical component is C2 which should preferably be a close tolerance silver mica capacitor. Initially the probe is connected to the output of the oscillator. R1 is adjusted to give a suitable full scale or near full scale reading on the meter, in my case 1.0 volt. Note on some multimeters the most sensitive DC range is 0-5 volts, however some of these have 0-50 μA range which could be used in series with a 20k resistor to give one volt full scale deflection. Also the value of R2 could be modified or shorted out, if the meter resistance is too low.

Having set up the equipment as above the values of the unknown capacitors can now be calculated and a table made or a curve drawn for future reference. In the following example using 5 pF for C2, values of capacitors of 0-100 pF can be calculated, other values of C2 can be used to measure larger capacitors.

If C1 = unknown capacitor
C2 = sample capacitor
V1 = full scale DC value (1 Volt)
V2 = DC voltage with C, in place

$$\text{then } \frac{V1}{V2} = \frac{C2}{\text{C1 in series with C2}}$$

$$\text{or } V2 = \frac{V1\ (\text{C1 in series with C2})}{C2}$$

when V1 = 1 volt and C2 = 5pF
Calculating value of V2 for 100 pF capacitor as follows —

Series combination of:

$$C1 + C2 = \frac{C1\ C2}{C1+C2} = \frac{100 \times 5}{100 + 5} = 4.76 \text{ pF}$$

$$V2 = \frac{1.0 \times 4.75}{5} = \underline{0.95 \text{ volts}}$$

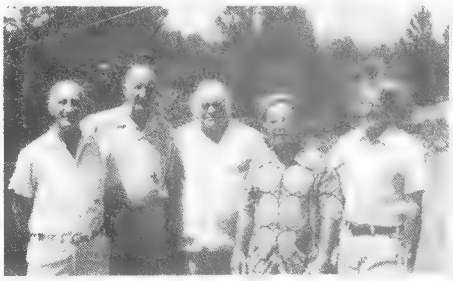
For 5 pF capacitor:

$$\text{Series combination} = \frac{5 \times 5}{10} = 2.5 \text{ pF}$$

$$V2 = \frac{1.0 \times 2.5}{5} = \underline{0.5 \text{ volt} = \tfrac{1}{2} \text{ scale}}$$

AR

DXers of QUEENSLAND



Some of Queensland's top DX men. L-R: Keith VK4KS, Gil VK4AK, Ken VK4KA, Trevor VK4ATS and Fred VK4RF.

Contributed by Fred Lubach VK4RF

QSP

EMC

The 7th International Wroclaw Symposium and Exhibition on Electromagnetic Compatibility, which is organised by the Polish Academy of Science and supported by the Polish Ministry of Posts and Telecommunications takes place from the 18th to 20th June 1984 in Wroclaw.

It will include a special session devoted to EMC problems related to amateur radio.

Adapted from Rad Com, April 1984

AR

USING THE BF981 IN TWO METRE PREAMPS

Gordon McDonald, VK2ZAB
51 Wideview Road, Berowra Heights, NSW 2082

There is no doubt that the Philips BF981 dual gate mosFET is an excellent choice for two metre preamps. On a performance for dollar basis it may be the best device currently available. However, circuits published in some overseas magazines have failed to perform as well as expected. This article suggests a possible reason for this and provides information on how to realise the device's potential.

PERFORMANCE CLAIMED

The Philips data sheets give typical noise figures for the BF981 as 0.7 dB at 200 MHz and 0.6 dB at 100 MHz. Curves are provided for determining the source admittance necessary to obtain these figures.

The noise figures claimed for some circuits published in European magazines are from 1.2 to 1.5 dB and although this is not to be sneezed at it isn't as good as the manufacturers data sheets claim.

The reason for this probably lies in the type of input circuit used. The European circuits use the standard coil and parallel capacitor combination with the input tapped down the coil. It is difficult to adjust this combination to the point where the input gate sees the source admittance required for optimum noise figures.

INPUT CIRCUIT

Any component placed in circuit between the source of signal and the control electrode of the first amplifier will cause a reduction in noise figures. This applies to any type of amplifier whether FET, Bipolar Transistor or Vacuum Tube. This fact must be weighed against the necessity to provide that impedance match demanded by the amplifier for best noise figure and any requirement to guard against strong adjacent channel interference by limiting the input bandwidth.

The latter requirement has not been considered in the amplifier described. Reference to the circuit diagram will indicate that the number of components is minimal. The bandwidth is as broad as the proverbial bull's foot.

The sizes of L1 and C2 have been calculated to enable G1 to see that source admittance which will give optimum noise figure at 144 MHz. This value was interpolated from the circles of typical constant noise figures for 100 MHz and 200 MHz given on the data sheets.

CIRCUIT DESCRIPTION

C1 should be a low loss, low inductance capacitor. The author's prototype uses a leadless mica type soldered directly on to the input connector pin.

RFC must be low loss and preferably self resonant just above the two metre band, ie it must exhibit high impedance.

L1 is most important. Although a former and slug are used in the author's prototype it would be better to use an air cored coil provided that the necessary equipment and patience are available to enable it to be adjusted for best noise figure.

C2 must be a high Q trimmer. Best noise figure will be obtained with about 1.3 pF and as this is close to the minimum capacitance of any trimmer a larger maximum capacity component won't do.

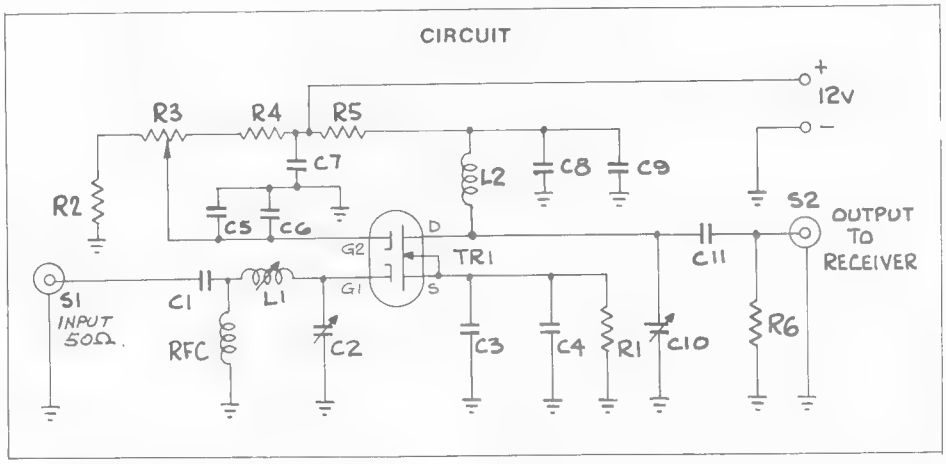
The source and gate, two bypass capacitors, must present an impedance which is to all intents zero at 144 MHz. There are various ways of achieving this but the author's approach is to use two capacitors to make up the 500 to 100 pF necessary. The two capacitors should be different values and different types of ceramic discs. The leads should be as short as possible and soldered as close to G2 and S as possible. If the lead length is such that the capacitor can be removed from the circuit and used again it is too long.

The same applies to the decoupling capacitors at the cold end of the drain coil L2 although these are not as critical.

The effectiveness of the source and gate two bypass capacitors may be tested by running the amplifier while observing the noise figure or by observing the level of a very weak steady signal and placing the metal end of a screwdriver on S or G2. If the noise, noise figure or signal changes the bypass is ineffective. In other words the element should be "dead".

No attempt has been made to match the output for optimum gain. With the circuit

CIRCUIT



Parts:

TR1	BF981 Philips.
S1-S2	Coaxial Sockets to suit your system.
C1	220 pF Ceramic or leadless mica.
C2	0-3 pF Trimmer — see text.
C3-C4	Ceramic Discs. Parallel Combination to make 500-1000 pF. Say one
C5-C6	
C8-C9	330 pF and one 470 pF. See text.
C7	1000 pF Ceramic.
C10	1-10 pF Trimmer.
C11	220 pF Ceramic.
L1	0.331 µH. 6.25 turns 26 gauge tinned copper wire on a Neosid Type A former with an F29 slug. No Can. Space the turns by winding wire on double and then removing one lot. Note that F29 is the only suitable slug.
L2	4 turns 22 gauge air spaced 1 cm long on an 8 mm mandrel.
RFC	0.47 µH. See text.
R1	33 Ω.
R2	2.7 K.
R3	5 K Trimpot.
R4	4.7 K.
R5	100 Ω.
R6	8.2 K.
	BF981. SOT-103 pack.

shown the author obtained 23.5 dB which was considered sufficient. Attempts to obtain more gain may result in instability.

The values of resistors R2, R3 and R4 are not critical. The requirement is to be able to adjust the voltage on G2 to 4-7 volts. A separate source of voltage with appropriate adjustment may be used if convenient.

ADJUSTMENTS

First adjust the voltage on G2 so that the BF981 draws 10 mA as indicated by 1 volt drop across R5. If a noise figure meter is available adjust L1 and C2 for best noise figure. Adjust C10 for maximum gain. Note that the gain is not as important as the noise figure. For example a typical second stage noise figure may be, say 5 dB, (optimistic for most transceivers) and you have a preamp of 1 dB noise figure with 20 dB gain. The overall system noise figure would be 1.07 dB. If your preamp noise figure now deteriorated to say 1.03 dB the gain would have to be increased 2.25 dB in order to maintain the same system noise figure. Thus in this example 0.03 dB noise figure is worth 2.25 dB gain.

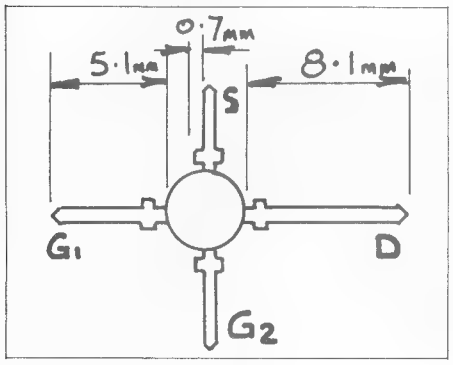
Next try adjusting the current by setting R3, thus G2 voltage for best noise figure. Up to 13-14 milliamps maximum would not be unreasonable. Readjust L1 and C2 afterwards.

If a noise source is not available, set the current to 10 mA, the slug in L1 flush with the top of the former and C2 just in mesh. You could then try readjusting each for best signal to noise ratio using the weakest steady signal available, ie S1 or S2. The frustration caused by this method should make your next project clear. Build a noise source.

RESULTS OBTAINED

The author obtained an indicated noise figure of 0.61 dB with a gain of 23.5 dB at 144 MHz using an HP 8970 A automatic noise figure meter.

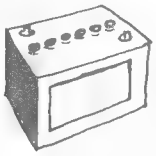
At 0.61 dB the slug was almost flush with the top of the former, C2 was just in mesh and the current was 11.87 mA. As these results and settings are almost exactly as predicted by the data sheets there is no reason to believe that they are not repeatable. However, all this assumes that the generator is 50 Ω, ie your VSWR must be low; but that's another story. Good luck and best of DX.



CAUTION

Some earlier BF981s were sold in a symmetrical X pack. With these it was difficult to tell which way was up. If your amplifier doesn't work and you have one of these earlier components try turning it up the other wav —it might still go.

Rechargeable Cells — Illusions and Realities



Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

Since my article (Amateur Radio, March 1976) rechargeable cells have, like most electronic components, improved in quality and performance. In particular the tolerance to fast charge rates has considerably increased. But unfortunately many of the myths, often copied from one article to another by people who don't check the facts or do any experimenting themselves, still persist.

One fashionable "in word" nowadays seems to be "memory". It is an unfortunate choice of words because one asociates it with the memory in a computer. Another is "reverse voltage". We will deal with this so-called "memory" first. Anyone with any experience of car batteries will know that if they are left in a discharged condition for a time it may be difficult or impossible completely to recharge them. The lead sulphate over a period has "hardened" or "solidified". But one wouldn't say the battery "remembers" it has been left discharged for a long period. If a *long and consistent* shallow cycle of charge and discharge is given to a nicad cell a similar effect occurs but only to a very minor degree. If a nicad cell is left discharged for a long period (which does it no harm whatever) it may require several cycles of charge and discharge before regaining its full capacity. But again we don't say it has a "memory" which enables it to "remember" it has been in a discharged state for a long time.

HEAT

As mentioned in the previous article one thing which nicads do *not* like is excessive heat. This is one factor which can cause an internal short circuit. That is, an ohm meter shows a complete short whichever way the probes are placed. A dead flat cell will on the other hand always show a slight difference in the readings. This short can often be removed by *flashing* the cell across a car battery or some other high current source. NOTE: *If the voltage is applied for even half a second the cell may overheat and explode: the contact must just be a quick flick of a wire or you can be in trouble!*

The existence of a shorted cell or two in a pack can lead to more myths about the memory, so called, of nicads. A fully charged cell can, even when taken off the charge, have a voltage of over 1.4 V. Imagine a pack of ten cells, two completely shorted. After being charged the eight good cells could have an initial voltage of about 11.5 V. But of course after a few minutes of use this drops to the normal 1.2 V per cell giving 9.6 V, and the hand-held goes dead. Dear, oh dear. What a short memory these nicads have! Forget about "memory" and look for the shorted cell or cells.

REVERSE

Another thing which those familiar with car batteries do not expect is that after some years of service every cell will simultaneously pack up. Invariably one cell will, through some slight difference internally, lose its charge before the others. Nicad cells are exactly the same. Suppose one cell loses its charge slightly faster than the others. After a period it could well be only half charged when the others are fully charged. On use it will be flat when the others are still charged. If the battery goes on being used the charged cells will force a reverse current through the flat one and try to charge it in the reverse direction

The fact is that nicad cells don't "go" into reverse polarity; they are "pushed" in the manner described above. Again the best procedure is to examine each cell and check its voltage individually and if one cell is down give it several cycles separately from the others. Sometimes it is very difficult to get at the individual cells and as an alternative which is better than nothing one can *flick* a high current source across the lot, hopefully removing any shorts, and then put the battery on a very slow charge, something like a fifty hour rate ie *10 mA current for a 500 mA capacity battery* and leave it for several days. The rate is too slow to cause any overcharge problems for the good cells and will hopefully bring the other cells up to full charge. Of course, if you are on a space project with unlimited millions of dollars you do the textbook checks and dump the battery in the tip!

RESISTANCE

Finally, if you want to find just how completely people take things for granted do the following experiment with a flat cheap torch, carbon-zinc, cell.

The textbooks say it goes flat because the internal resistance rises. So what is the internal resistance?

The external voltage on a 20 kohm/volt meter may show 1.2 V. Works out to thousands of ohms. Then try it across a high current meter range. It will give maybe 400 mA. Internal resistance two or three ohms. So what is the internal resistance of a flat battery? Try it for yourself and please let me know.

KENWOOD

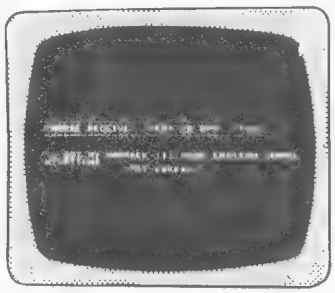
TS-93X MARK II

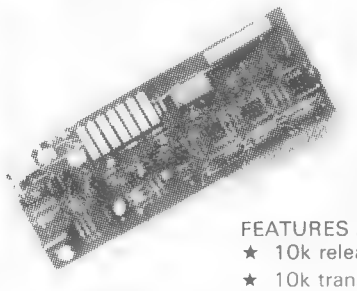
TS-43X HF TRANSCEIVER

SP-50

TR-9130
2M ALL-MODE TRANSCEIVER

TR-9500 70CM ALL-MODE TRANSCEIVER





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SPECIAL

75th Anniversary Competition

In 1985 the Institute celebrates its 75th anniversary.

A competition will be held for the design of a Logo to celebrate this historic event.

The winning design may be used on all the Institute's Publications and correspondence during the anniversary year.

Rules:

1. Open to all WIA members and their immediate families excluding office bearers and employees of the Institute.

2. All designs submitted become the property of the Wireless Institute of Australia.

3. Designs must include the WIA emblem reproduced below.

4. Reference in the Logo must be made to the 75th Anniversary.

5. Designs must be submitted to your divisional headquarters on a 25 x 20 cm approx. sheet of card (designs capable of reduction to 25 x 50 mm) with name, address of the designer followed by sponsoring member's callsign, name and address.

6. More than one entry may be submitted per person.

7. Entries must reach divisional offices by 31st July 1984 — no late entries will be accepted.

8. It may be that the winning logo may not be used but a combination of entries.

9. The decision of the judges will be final and no correspondence will be entered into.

10. A handsome prize will be awarded to the winning Logo.

VK6XA/mm

William Taylor VK6XA
Lea Close, Rossmoyne, WA 6155

The amount of interest shown by a number of amateurs contacted during the operation of VK6XA/mm from an oil rig during March and April 1984 suggests that perhaps it would be useful to provide some of the more pertinent details to the readers of Amateur Radio.

The OM at VK6XA is employed as a radio operator on oil rigs. This particular assignment was as operator on the "Ocean Digger" which was being towed from Darwin Harbour to the vicinity of Perth where the rig was to be used to drill a couple of oil exploration holes.

The "Digger" is a type of oil rig known as a semi-submersible, and has no means of propulsion or steering mechanism of its own. In fact, this type of oil rig is actually just a big barge. Of course it is loaded with complex (and expensive) mechanical and electronic equipment, plus the living quarters, galley facilities, laundry and other facilities for a crew of sixty-five which is normal when the rig is drilling. On tow, the rig carried only fourteen hands.

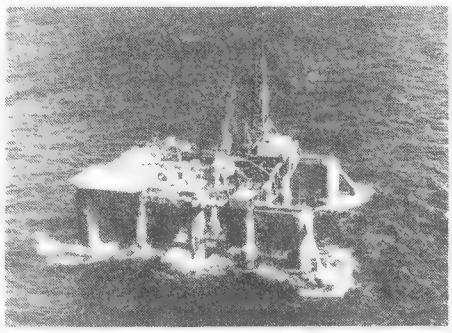
To get from one location to another, this type of oil rig is towed by sea-going tugs. In this instance, the two tugs doing the tow had a combined rating of 13 000 horsepower! The chains and cables attaching the tugs to the rig were about 1000 metres long.

The radio shack contains three HF SSB transceivers, one VHF transceiver for communication with the tugs and security boat, and one other VHF transceiver for communication with the two helicopters which followed along nearby, landing at pre-arranged places along the coast. Oh yes, there was one other complex piece of electronic equipment, namely one Uniden Model 2020!

The oil rig antennas, two broadband folded dipole types, were useful on eighty and forty metres, but left much to be desired for use on the higher HF bands. However, as one might expect, the crew on board an oil rig contains a number of very talented tradesmen. In this case, a mechanic, welder, and electrician were induced to perform some useful work (off-duty, naturally) and constructed a mighty fine quarter-wave fifteen metre whip from scrap stainless steel tubing and scraps of Perspex for the base insulator. A short length of salvage RG8U coax was used to feed the antenna, and it was mounted on S steel railing up near the 'chopper deck. The base of the whip was about thirty five metres above the ocean surface and considering the area of the oil rig (about ¾ of a hectare in the water), well, it was a fine ground plane. Results with the antenna were excellent; one of the first contacts brought an S9 report from ZS and a few "15 over 9" reports from various other places. In fact, the results so impressed the other members of the crew that the construction crew were re-assembled to build another, similar, whip for the ship-to-shore rig used for business and personal calls home.

For those who may have wondered what an oil rig is like (see photo), here are a few pertinent details: The Ocean Digger rides on four pontoons, each about 120 metres long and having a circumference of seven metres each. Overall height of the rig, with the derrick up, in the drilling position, is something in excess of 100 metres. The derrick can lift 1 000 000 pounds! Electrical power to operate the drilling apparatus is obtained from five 1200 kW generators; AC power is obtained from two 300 kW alternators. The displacement of the oil rig is 18 000 tons. An on-board desalinator provides most of the fresh water requirements, but this is supplemented by tanks on board the supply boats.

The author was able to crew change by helicopter from about ninety miles off Geraldton when the "Digger" was about three days away from Perth. The tow took nearly three weeks, with an average speed of about four knots per hour and travelled nearly 2000 miles overall.



Normal crew change takes place ever two weeks, resulting in a 2-on, 2-off basis of duty. It is unlikely that the rig will undergo another long tow for some time. When the rig is drilling, there is not much time to "operate radio" but if there is to be another tow, the Uniden (and operator) will be ready!

Note: William has operated frm many parts of the world. His former call signs were W8YMJ, W6NVJ, JA5AN, DL4QW, F7DW, VK1WT, VK2AWT and the present call VK6XA-AX6XA.

NOVICE NOTES

Ron Cook, VK3AFW
TECHNICAL EDITOR

UTILITY AUDIO AMPLIFIERS

The average constructor soon finds a need for a general purpose audio amplifier. Two circuits are presented and described.

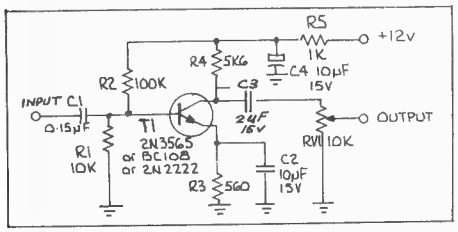


Fig 1 — SIMPLE TRANSISTOR AMPLIFIER. The transistor, T1, may be any medium to high gain audio NPN transistor such as 2N3565, BC108, 2N2222 etc. A voltage gain in the range fifty to 100 may be obtained. See further details in text.

Figure 1 shows a one transistor amplifier capable of giving up to 40 dB gain. Resistors R1 and R2 provide the bias voltage for T1. The collector current is set by the value of R3 and should be about 0.6 mA for the values shown. The collector resistor, R4, develops a voltage in proportion to the collector current. Hence to obtain 1 volt RMS we need an RMS current variation of 0.178 mA in R4. This variation is of course generated by the input signal which, if the transistor has a current gain of 100, will need to supply almost 1.8 μA.

The capacitor, C1, allows AC signals to pass but by blocking off DC prevents interference to the bias. The value of C1 is selected to allow amplification of all AC signals above the lowest frequency of interest. For example if 300 Hz is the lowest frequency in which we are interested than a value of 0.15 μF would be appropriate. The value of C2 is also important as if it is absent the negative feedback produced by R3 will reduce the gain to about ten for this circuit. The value shown will give a roll-off below about 30 Hz. It should be noted that when the reactance of C2 equals the resistance of R3 the gain will have dropped to 70.7 percent of its maximum value. This frequency is called the cut-off or roll-off frequency as the gain falls away rapidly as the signal frequency is reduced below this frequency.

If C2 is made to have a roll-off frequency well below the range of interest then C1 becomes dominant. It has a value such that its reactance is equal to the input resistance of the transistor and its bias circuit at the desired cut-off frequency.

C3 is chosen to be large enough to pass the lowest frequency of interest with little loss. At that frequency it should have a reactance that is smaller than the value of RV1.

It is not usual to select all capacitors to have the same roll-off frequency as there is a 3 dB drop in output for each and it would require some juggling to select an appropriate lower roll-off and still retain gain at the frequencies of interest (see later). Further some problems of instability can occur if common cut-off frequencies are chosen in more complex circuits with feedback. To bypass stray RF, small (1000 pF) capacitors are often connected from collector to ground and/or base to ground. These have the effect of limiting the high frequency response by bypassing the output or input at high frequencies. A 1000 pF capacitor from the collector to ground would attenuate signals above about 45 kHz.

The circuit is reasonably tolerant to variations in transistor type.

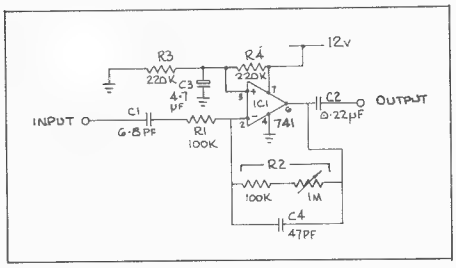


Fig 2 — SIMPLE IC Audio Amplifier. The amplifier uses a low cost 741 type IC in a circuit that requires only a single supply rail. It has a gain range of one to ten (0-20 dB). Refer to text for further details.

Figure 2 shows a similar circuit but in this case the active device is an integrated circuit operational amplifier type 741.

The input resistance is better defined as it is set by R1. C1 is chosen to have a reactance equal to R1 at the lower roll-off frequency of the amplifier. A value of 6.8 nF would be suitable for a 300 Hz cut-off.

The gain is set by the ratio of R2/R1. R2 is a composite resistor made up of a fixed 100 k ohm resistor and a 1 M ohm potentiometer in series to allow the gain to be varied from one to ten. Reducing R1 to 10 k ohm would multiply these figures by ten.

C2 is the output coupling capacitor. Its value depends on the size of the load but a typical value would be 0.22 μF.

C4 may be added to roll-off the high frequency end of the amplifier's range. When R2 has a value of 1 M ohm a 47 pF capacitor will roll-off the gain above 3 kHz. To keep a constant bandwidth it would be necessary to make R2 fixed and vary the gain as in Fig 1.

One feature of this circuit is the use of an ordinary operational amplifier with a single supply rail. R3 and R4 are used to provide the appropriate bias for this, and C3 gives additional hum and noise filtering. Although the supply is shown as 12 volts it may be varied by as much as a factor of two in either direction without gain change although the output voltage swing obtainable will always be less than the supply voltage.

So when next you need a little extra audio gain why not try one of these circuits.

FREQUENCY RESPONSE

For those readers with a further interest in the frequency response of C-R networks I have included some additional information in the form of two graphs shown in Figures 3 and 4.

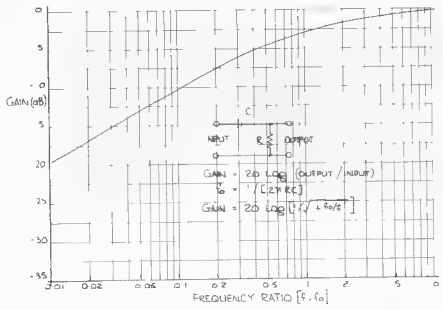


Fig 3 — Frequency response of a High Pass RC Network.

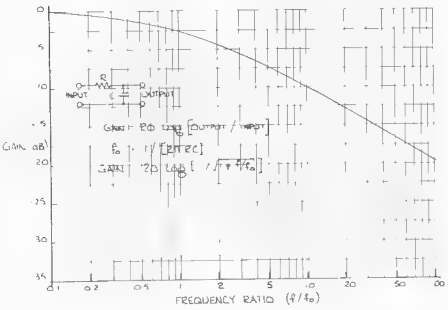


Fig 4 — Frequency response of a Low Pass RC Network.

These are universal design curves which assist in selection of values of R and C to achieve the desired cut-off frequency. Inspection of the curves can be very revealing. It is obvious that by combining a high and low pass combination (with an intervening buffer) a bandpass circuit of modest performance can be built.

Consider the case of an amplifier for which we want a lower cut-off frequency, f_0, of 100 Hz. If R = 1 M ohm we can calculate C from

$$C = 1/(2\pi_0 R)$$
$$= 1{,}592 \text{ pF}$$

From Figure 3 we can predict that signals at 100 Hz will be attenuated by 3 dB while those at 10 Hz will be attenuated by 10.4 dB and 1 Hz signals will be attenuated by 20.0 dB. We can see that going down a further factor of ten in frequency would add another 10 dB loss so signals at 0.1 Hz would be 30.0 dB down.

Figure 3 can be used to determine changes to the frequency response if C or R change.

In the case where we have two networks with common CR products they would therefore have the same f_0 and hence we need to select f_0 such that we obtain only 3 dB loss at our nominated roll-off frequency. Taking our previous example of 100 Hz we want each network to contribute only 1.5 dB. From

Figure 3 we find f/f_0=2.42. Thus each network should be calculated on the basis of f_0=100/2.42=41.3 Hz. When combined the loss will be 3.0 dB at 100 Hz and 6.0 dB at 41.3 Hz. The values of C1 and C2 in Figure 1 could be selected on this basis.

If the positions of C and R are transposed then a low pass configuration is formed. Figure 4 shows the frequency response calculated from the formula Gain $=20\log(1/(1+f/f_0))$

73 de VK3AFW

AR

INTERNATIONAL NEWS

NEW QSL BUREAU

The Belgian (ON) QSL Bureau has a new address and the old address is now cancelled.

The new address is: UBA QSL Bureau, PO Box 400, B-8400 Oostende, 1 Belgium.

INSTITUTION OF DIAGNOSTIC ENGINEERS

The Institution was formed in April 1981 and appears to meet a need in industry in that it has enrolled over 3000 members in the 2¾ years of existence. Such members come from all industries and cover a wide range of occupations and distinctions. There are professors from the University of Cambridge, Massachusetts Institute of Technology, from Brazil, Canada, Australia, Egypt, Greece and Poland. There is a Sergeant Instructor from the Nigerian Air Force, a Group Captain from the Sri Lankan Air Force (as also from RAF), a retired Admiral from South Africa and a lady NCO in the Womens Royal Air Force. There are many Chief Engineers, Consulting Engineers and Field Service Engineers, laboratory technicians, computer technicians, automobile engineers, marine engineers, aircraft engineers, print engineers, radio engineers etc.

It publishes a bi-monthly thirty two page Newsletter full of technical articles relating to defect recognition and diagnostic techniques. A £250 prize has been set up for the best brief description of a diagnostic situation (to be described in less than two pages!) and other prizes are available.

The First Annual Convention of the Institution of Diagnostic Engineers will be held at the City Conference Centre, London on 4th, 5th, 6th, 7th September 1984. Further details are available from: Institution of Diagnostic Engineers, 3 Wycliffe Street, Leicester LE1 5LR, England.

ARRL Board Selects New Leaders

The ARRL Board of Directors met in Hartford, CT, on 26-27th March 1984. One of the first items on the agenda was the election of officers to serve until the 1986 Annual Meeting (approximately a two-year term). The new officers are: Larry E Price, W4RA, President; Leonard Nathanson, W8RC, First Vice President; Gar Anderson, K0GA, Second Vice President; Jay Holladay, W6EJJ, Third Vice President; Richard Baldwin, W1RU, International Affairs Vice President; David Sumner, K1ZZ, Secretary; James McCobb, K1LLU, Treasurer.

The following directors were elected to the Executive Committee, which administers the League's affairs during the intervals between meetings of the Board: Paul Grauer, W0FIR; Hugh Turnbull, W3ABC; Lys Carey, K0PGM; Gay Milius, W4UG.

NEW POWER LIMITS

ARRL's request for the elimination of power restrictions on 160-metres has been approved by the FCC. The Commission's Order was adopted on 22nd March and released on 27th March. Effective immediately, A1 and A3 emissions with a maximum PEP output of 1500 watts are permitted in all areas under FCC jurisdiction over the entire 1.800-2.000 MHz band.

The League's petition asking for F1 emissions on 160-metres has not been acted upon yet.

AMATEUR RADIO IN SPACE

ARRL officials have been conducting informal talks with NASA representatives regarding possible future amateur radio operations from the space shuttle. Astronaut Tony England, W0ORE, is scheduled to fly a shuttle mission in March 1985. There is the possibility of another amateur flying shortly after that mission. Current talks suggest that the project will most likely be a refined version of the one from STS-9, with operations concentrating on 2 metre FM. A 10 metre FM or CW mode could be added if NASA engineers discover a means of feeding a signal through the bulkhead of the shuttle to an antenna to be located in the bay. Nothing has been officially decided at this time. The first step will be for ARRL to draft a formal proposal and present it to NASA. Suggestions for consideration should be forwarded to Peter O'Dell, KB1N, at ARRL Headquarters.

from ARRL Letter — 15 March 1984

POSITION CONCERNING NEW BANDS IN GREECE

The following *new* HF bands have been granted:

1.830 — 1.850 MHz primary
3.685 — 3.700 MHz secondary
10.100 10.150 MHz secondary
18.068 — 18.168 MHz primary
24.890 — 24.990 MHz primary

But until the above spectrum was cleared of existing users only the following bands were permitted to be used until 31th December, 1983.

1.830 — 1.850 MHz secondary
10.100 — 10.150 MHz secondary

The balance was granted after January 1984 progressively. Band Plan in Greece for the portions permitted follows the IARU Region 1 Band Plan.

Reciprocity now is only with US, Canada and Cyprus. But it is believed that within 1983 a number of European countries may have concluded reciprocity agreements. Countries interested are UK, Netherlands, France, Germany, Spain, Belgium and Sweden.

(from E Moustakas SV1AN)
From Region 1 News, November 1983

NEW BANDS UPDATE

As at 1 January 1984, it is understood that countries with allocations in the post-WARC new HF bands are as follows.

10.100-10.150 MHz: Algeria; Andorra; Antigua Barbuda; Argentina, 10.100.5-10.103, 10.119-10.121.5 and 10.143.5-10.146.5 MHz; Australia not 10.126-10.134 MHz and 10.137.5-10.145.5 MHz; Austria; Bermuda; Botswana; Canada; Cayman Islands; Colombia; Costa Rica; Cyprus; Denmark; Djibouti; Commonwealth of Dominica; El Salvador; Faeroe Islands; France; German Democratic Republic; Federal German Republic; Gibraltar; Greece; Grenada; Honduras; Indonesia; Israel; Japan; Luxembourg; Malaysia; Malta; Monaco; Montserrat; Netherlands; Netherlands Antilles; New Zealand, 10.100-10.127 and 10.133-10.150 MHz; Nicaragua; Nigeria; Norway; Panama; Papua New Guinea; Portugal; San Marino; Senegal; Solomon Islands; South Africa; Spain, 10.107.5-10.113.5 MHz; Surinam; Switzerland; Syria; Tonga; Trinidad & Tobago; the UK; the USA, 10.100-10.109 and 10.115-10.150 MHz; Western Samoa; and Yugoslavia.

18.068-18.168 MHz: Algeria; Andorra; Antigua Barbuda; Argentina, 18.073-18.076.5, 18.083.5-18.089.5, 18.096.5-18.108.5, 18.121.5-18.149 and 18.151.5-18.167.5 MHz; Australia, not 18.071-18.079, 18.101-18.109, 18.121-18.134, 18.141-18.149 and 18.156-18.164 MHz: Austria; Botswana; Cayman Islands; Colombia; Costa Rica; Cyprus; Denmark; Djibouti; El Salvador; Faeroe Islands; France; Federal Republic of Germany; Gibraltar; Grenada; Honduras; India; Monaco, not 18.103-18.116, 18.129, 18.135 and 18.165 MHz; Netherlands; Netherlands Antilles; Nicaragua; Nigeria; Norway; Oman; Panama; Portugal; San Marino; Senegal; South Africa; Switzerland; Syria; Tonga; Trinidad & Tobago; the UK; and Yugoslavia.

24.890-24.990 MHz: Algeria, Andorra; Antigua Barbuda; Argentina; Australia, not 24 896-24.904 MHz; Austria; Botswana; Cayman Islands; Colombia; Costa Rica; Cyprus; Denmark; Djibouti; El Salvador; Faeroe Islands; France; Federal Republic of Germany; Gibraltar; Grenada; Honduras; India; Monaco; Netherlands; Netherlands Antilles; Nicaragua; Nigeria; Norway; Oman; Panama; Papua New Guinea; Portugal; San Marino; Senegal; South Africa; Switzerland; Syria; Tonga; Trinidad & Tobago; the UK; Yugoslavia.

from Rad Com April 1984

HONOUR FOR AUSTRALIAN HEAD OF THE INTERNATIONAL TELECOMMUNICATION UNION

A resolution of the Director Committee of the Greek Society of Air and Space Law of

Athens, upon recommendation of its Members, has unanimously resolved that: *"Richard E Butler, distinguished man originating from Australia competent both in telecommunications science and art and ardent servant of the international co-operation being actually Secretary-General of the venerable ITU, in exchange of all these he has tirelessly worked in the entire last twenty-year period for the continuous improvement and rational use of telecommunications of all kinds all over the world, and also in favour of the social and economic development of all peoples of the world of their peaceful relations and solidarity he has thus generously offered great services both to the cause of human rights and to the prosperity of nations, as well as to the international peace and security, to praise him and nominate him as Member Honoris Causa in Perpetuum of the Greek Society of Air and Space Law."*

The nomination took place in Athens during an official visit of Mr Butler to Greece on 15th February 1984.

Mr Butler was elected Secretary-General of the ITU by its Plenipotentiary Conference, held at Nairobi in October 1982, and took office on 1st January 1983. He has served as Deputy Secretary-General of the Union since 1968 on being elected, after nomination by Australia. He is seconded from TELECOM (Australia).

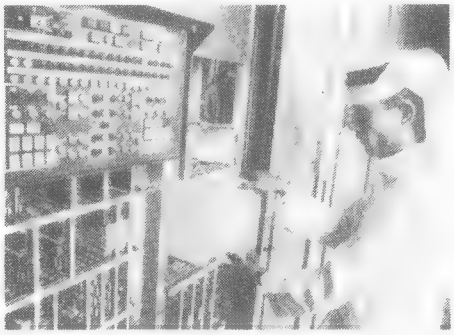
WORLD TELECOMMUNICATIONS DAY — 1984

"Telecommunications: expanding horizons" was the theme adopted by the ITU for the 16th World Telecommunication Day which was held on 17th May 1984.

Not a water tower, but a 20 GHz radio-relay intermediate repeater station in Japan.

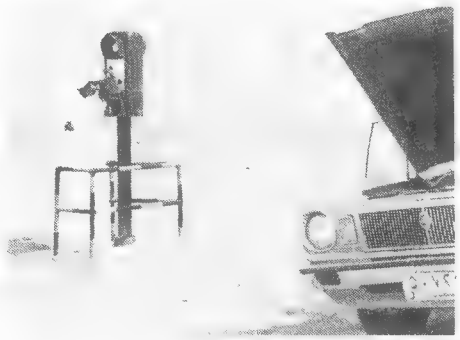
World Telecommunication Day this year marked the 119th anniversary of the founding of the ITU.

By proposing "Telecommunications: expanding horizons" as the theme for this day, the ITU Administrative Council sought to emphasise the new dimension assumed by telecommunications in the development process and the remarkable possibilities offered by current technologies.



Data transmission equipment in Saudi Arabia. (Photo: Phillips)

Emergency telephone station in a sparsely inhabited area of Finland. (Photo: Finland Administration)



Telephone in the desert: emergency call unit in the desert of Kuwait. (Photo: Siemens)

WOODPECKER HAS FOUR SITES

An article by Jan-Petter Helgesen in the 23rd November 1983 issue of "Stavanger Aftenblad" claims that the Soviet "Woodpecker" actually consists of four different transmitter sites: One near *Kiev*, in the Ukraine, one in *Pechora* in Northern Siberia, one in *Abalakova* in Central Siberia and one in *Komsomolsk* in the Soviet Far East. The story quotes Mr Gunnar Borvik, Director of Rogaland Radio (one of the world's major maritime radio stations as far as the amount of radio traffic handled is concerned) near

Stavanger as saying that Woodpecker interference has increased lately. He also says that a joint letter from Rogaland Radio and the Norwegian Telecommunications Authority to the Russians in August 1983 now has been answered. The Russians claim that their monitoring stations have not registered any increase in the amount of interference from such (ie Woodpecker type) stations lately, but that Soviet communications are also interfered with by similar stations from outside the Soviet Union. Mr Borvik goes on to say that the latter remark obviously is a reference to reports that a US over the horizon missile warning system is now operative. However, the American system has not been monitored at Rogaland Radio nor have such transmissions from the US ever disturbed Rogaland Radio's world wide communications. The Abalakova transmitter site is the newest of the four activated in the summer of 1983.

adapted from DX'ers Calling — April 1984
AR

QSP

OLYMPIC GAMES

Amateur radio will be a part of the 1984 Olympics this summer. Amateurs in Southern California have been given the word that the Olympic Committee will permit them to set up three stations at the three Olympic villages to handle traffic for the visiting athletes. Because of security considerations, only a very limited number of amateurs will be allowed to participate. Each amateur involved must pass a security check and must be willing to commit to a "heavy" schedule of operation. The volunteers will also be required to undergo a lengthy training period before the Olympics begin.

The Olympics Torch Run, officially scheduled for 8th May-29th July, will be another area in which amateurs will participate in the Olympics. Amateurs from Telephone Pioneers of America, an AT&T group, will provide amateur radio communications between the Torch Runners and a base station. HF AMTOR and phone will be used to exchange data and emergency communications.

from ARRL Letter — 15 March 1984
AR

YLs ACTIVE ON SIX METRES

On 14th January 1984 a contact took place on 6 metres which is believed to be the first VK/ZL YL to YL QSO on 6 metres.

At 0135 UTC Mary VK4PZ in Rockhampton contacted Carol ZL2VQ on 52.005 MHz USB Signals were 5 x 6-7.

From Break-In, March 1984
AR

CROSS NEEDLE METER
DAIWA

QUALITY PRODUCTS FROM . . . VICOM

VIC Vicom International Pty Ltd.
P.O. Box 366, South Melbourne, 3205
Telephone. 62 6931 Telex AA36935

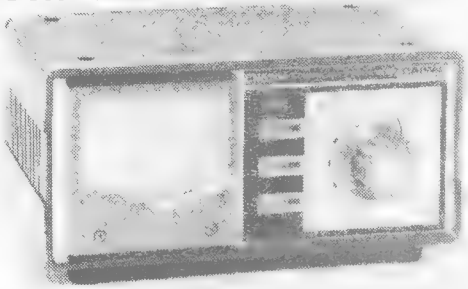
NSW. Vicom International Pty. Ltd
118 Alfred Street, Milsons Point, 2061
Telephone 436 2766 Telex AA70619

NZ Malvicom International Ltd.
P.O. Box 31-009, Lower Hutt,
New Zealand
Telephone 69 7625 Telex· (74)3334

ANTENNA TUNERS

	CNW-219	CNW-419	CNW-518	CL-680
FREQUENCY	3 5-30MHz (8 bands)	1 8-30MHz (Continuous coverage 17 bands)	3 5-30MHz (8 bands)	1.8-30 Mhz (Continuous coverage 17 bands)
POWER RATING	100W CW	200W CW (3 5-30MHz) 100W CW (1 8-3 4MHz)	1kW CW (50% duty)	200W CW (3.5-28 MHZ) 100W CW (1.8-3.4 MHZ)
INPUT IMPEDANCE				
OUTPUT IMPEDANCE	10-250 ohm		10-250/25-100 ohm (on 3 5MHz)	10-250 OHM
METERING RANGE	20.100W	20/200W	20/200/1kW	No Meter
DIMENSIONS (W × H × D mm)	225 × 90 × 245		225 × 90 × 275	165x75x95

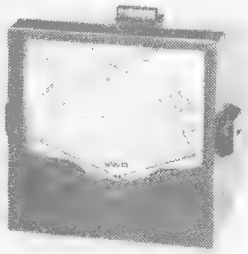
SWR AND POWER METERS

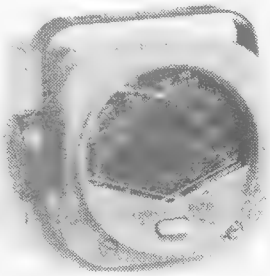


	CN-620A (B)	CN-650
FREQUENCY	50MHz	1 2-2 5GHz
INPUT/OUTPUT IMPEDANCE		
POWER FWD	20/200/1kW (2kW)	2/20W
POWER REF	4/40/200W (400W)	0 4/4W
SWR DETECTION SENSITIVITY	4W min	0 4W min
TOLERANCE (full scale)	±10%	±15%
CONNECTORS	-239	N type
DIMENSIONS (W × H × D mm)		

Compact Size Cross Needle Meters

	CN-520	CN-540	CN-550
FREQUENCY	1 8 - 60MHz	50 - 150MHz	144 250MHz
POWER RANGE	200/2kW	20/200W	
IMPEDANCE			
METER ACCURANCY			
CONNECTORS	SO 239		
DIMENSIONS (W × H × D mm)			

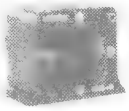




NEW MOBILE METERS

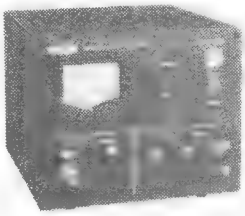
	CN-410M	CN-460M
Frequency	3 5–150MHz	140–450MH
Input output impedance	50 OHM	
Ratio of Forward vs Reflected power	3 1	
Power range Forward Reflected	15W 150W 5W 50W	15W 150W 5W 50W
Tolerance	±15% AT FULL SCALE	
SWR measurement	1 1-1 0	
SWR detection sensitivity		
Input output connectors	SO-239(type MI	SO 239(type MI
Dimensions	71A x 78H x 100D	

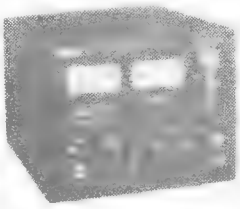
Coaxial Switches

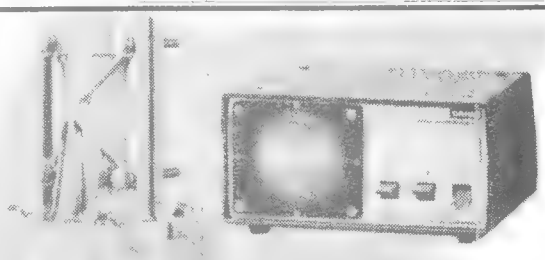


	CS-201/CS-201N	CS-401	CS-4
FREQUENCY	600MHz	800MHz	1500MHz
VSWR	below 1 1 2		
POWER RATING	2 5kW PEP 1kW CW		500W PEP 250W CW
IMPEDANCE	50 ohm		
INSERTION LOSS	Less than 0 2dB		
ISOLATION	better than 50dB at 300MHz better than 45dB at 450MHz adjacent termina		better than 60dB
CONNECTORS	SO 239 (N type)	SO 239	BNC
OUTPUT PORT	2	4	4
	"Unused terminals grounded"		

POWER SUPPLIES



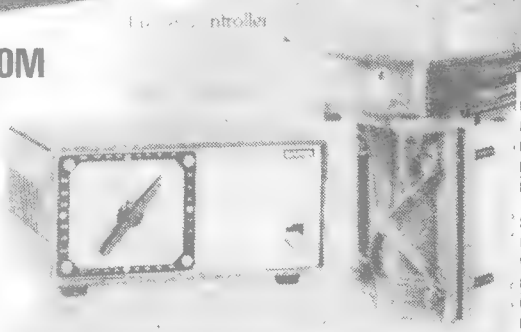




. . . PLUS THE NEW PS-80M ANTENNA ROTATORS

GOING OUT AT SPECIAL PRICES.

PLEASE RING FOR PRICES BETWEEN 9 AM AND 5 PM MONDAY TO FRIDAY.



	DR-7500R/X	DR-7600R/X
ROTATION TORQUE	500kg-cm	600kg-cm
MOTOR	24V AC	
POWER SOURCE	230V AC	
ROTATION TIME (50/60Hz)	60/50 sec	64/53 sec
BRAKE	Mechanical	Mechanical & electrical
STATIONARY BRAKING TORQUE	2000kg-cm	4000kg-cm
CABLE TO BE USED	6 core conductor cable	
VERTICAL LOAD	200kg	
PERMISSIBLE MAST SIZE	38 ~ 65mm	
CONTROLLER		
DIMENSIONS (W × H × D m/m)	180 × 85 × 120	

AR SHOWCASE

THE VIC CENTRE — MENU

This book has a most comprehensive listing of software, hardware, and publications for the Commodore 64 and VIC-20 with a special amateur radio section of RTTY, AMTOR, etc.

The VIC Centre is a division of CW Electronics, one of the longest serving dealers and certainly the first Commodore Dealer to be appointed in Queensland.

Brian Beamish and his staff have been involved with the sale of every Commodore product since the launch of the original Commodore PET and they have enjoyed an excellent reputation for their support and service capabilities.

The VIC Centre was established to cater for the enormous demand for Commodore VIC 20 and Commodore 64 software and accessories which has been generated by the success of these products in Australia.

It is evident from the size and comprehensive nature of this catalogue that a great deal of time and effort has been spent in sourcing good quality products to offer the Australian Commodore User.

Further information is available from your Commodore dealer or CW Electronics, 416 Logan Street, Stones Corner, Brisbane. Phone: (07) 397 0888.

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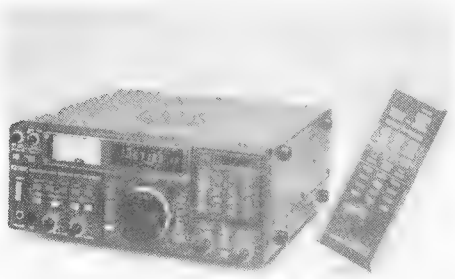

KEYBOARD CONVENIENCE IN ICOM'S NEW COMMERCIAL GRADE RADIO RECEIVER

ICOM Australia has introduced the newest addition to its proven range of top quality radio equipment. The IC-R71A is a 2 MHz to 30 MHz superior grade general coverage transceiver with innovative features including keyboard frequency entry and optional wireless remote control. This receiver has the capability of being interfaced with a computer. Major specification features include: 32 programmable memory channels, SSB/AM/RTTY/CW/FM (optional), dual VFO's scanning, selectable AGC and versatility in use matched by few receivers near its price. Almost immune to signal interference by utilising ICOM's Direct Feed Mixer (DFM) the IC-R71A is ideal for the experienced operator, or for the beginner.

Unique to this shortwave receiver, ICOM have introduced direct keyboard entry for simple, but precise frequency selection (and it operates independently of the main tuning control as required).

The IC-R71A is available from the distributors ICOM Australia Pty Ltd, 7 Duke Street, Windsor, Victoria 3182. Telephone: (03) 529 7582 or from Authorised ICOM Dealers throughout Australia.

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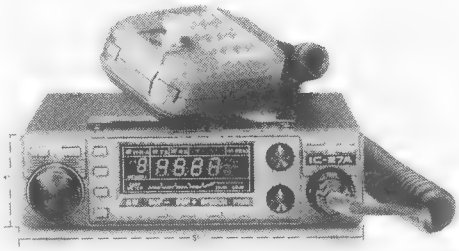

ICOM's NEW COMPACT TWO METRE MOBILE

A new breakthrough in compact, 2 metre mobile communications, the ICOM IC-27A is small (28 mm high x 140 mm wide) but packs high performance features including 25 watts output power, ten tunable memories, band or memory scanning, priority scan, optional speech synthesizer for verbal frequency announcement, and microphone with sixteen button keyboard for repeater station access.

Despite its tiny size, the IC-27A even boasts an internal speaker to make the unit a complete package, with all the features, power and reliability normally expected in much larger mobile units. The IC-27A is available from the distributors ICOM Australia Pty Ltd, 7 Duke Street, Windsor, Victoria 3182. Telephone: (03) 529 7582 or from Authorised ICOM Dealers throughout Australia.

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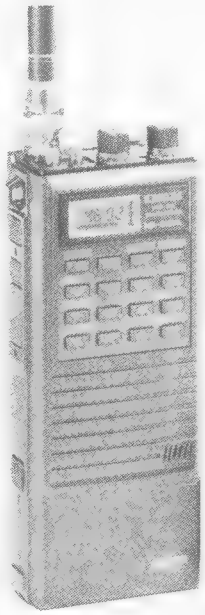


NEW HAND-HELD TWO METRE TRANSCEIVER WITH DIRECT KEYBOARD ENTRY FROM ICOM

New from ICOM Australia, the IC-02A is designed to compliment ICOM's extensive range of hand-held transceivers and accessories.

Its many features include: Direct Keyboard entry through the sixteen button pad which allows simple, precise selection of frequencies and the functions including duplex, ten programmable memories, memory scan, priority, dial lock, etc.

An LCD readout display indicates frequency and function status, and the IC-02A includes other useful features such as battery lock, frequency lock and lamp on/off switch. Many optional accessories, and various battery/charger combinations are available to suit most requirements.

Maximum RF output is 5 watts with optional battery pack BP7.

All accessories for this model are compatible for use with the IC-2A which continues to be available.

The IC-02A is available from the distributors ICOM Australia Pty Ltd, 7 Duke Street, Windsor, Victoria 3182. Telephone: (03) 529 7582 or from authoried ICOM Dealers throughout Australia.

AR

QSP

IMPROVED MULTI-CULTURAL TV

An extract from "Communications" No. 84, in a Press Release from the Minister of Communications of "Tower Work to Improve Melbourne Multi-Cultural Television Reception", states:

Mr Duffy said the cost of raising the SBS antenna at Mt Dandenong was estimated at $20 000 and this was a cheap price to pay for what would be a noticeable improvement in reception.

The Minister said that as previously announced multicultural television transmissions on VHF Channel 0 in Melbourne and Sydney would cease on 31st December 1984. The service would only be shown on UHF Channel 28 in these cities from 1st January 1985.

"It was always intended that the Channel 0 transmissions would be an interim step using less than optimum facilities to allow viewers to receive multicultural television first on VHF and have time to learn about reception of UHF signals", Mr Duffy said.

He said it was important to note that because the VHF band was becoming congested, any new developments in television broadcasting in major cities would be placed on the UHF band.

UHF television provided extremely high quality reception free of power-line interference, but it was important that householders had the correct receiving equipment. In particular, all sets should be connected to a special outdoor UHF antenna via a low-loss cable.

AR

COMMERCIAL CHATTER

GENTLEMAN TOKUZO INOUE JA3FA MWIA

An insight on the Japanese amateur radio and CB scene, and future trends in equipment were revealed recently by the founder and President of Icom Incorporated, Tokuzo Inoue JA3FA during a visit to Australia.

Before entering the communications equipment field twenty years ago the company had a small factory producing appliances such as airconditioners.

Tokuzo said at the time Japan Post Office had decided to give the Japanese Amateur Radio League the job of conducting licence exams and there was a radio amateur population explosion.

He said: *"One of my old amateur friends came to the factory and suggested I get started in the amateur radio business."*

Initially Icom began to meet the needs of the then rapidly expanding Japanese market, and has since grown with distributors in about forty countries and in the United States, West Germany and Australia, its own companies.

It directly employs 440 people, and a further 700 on a sub-contract basis. The staff consists of sixty engineers and 250 technicians, and Tokuzo proudly said: *"About ninety percent of the employees are amateurs."*

Icom has thirty percent of the world market in amateur radio equipment, and claims market leadership in the USA and Australia.

From the start Tokuzo has maintained an entrepreneurial and leadership influence over his company.

Despite being the head of a large commercial empire he remains a member of Icom's team of quality testers and also finds time to ragchew or chase DX.

Tokuzo said it was his policy for all new Icom equipment to be tested by radio amateurs employed as part of the quality test team, and he tries each new rig on air himself.

TECHNOLOGY TO OVERCOME LANGUAGE BARRIER

He said computer technology was developing so fast making it difficult to predict, but as technology grows it would go into amateur equipment with some exciting possibilities.

Tokuzo said rigs in the future will have inbuilt capability for RTTY, AMTOR, and data communications as these modes increase in popularity.

He said: *"Maybe pretty soon, computer controlled language translators will be included.*

"International QSOs will become much easier. At the present time with DX communication many Japanese have difficulty with the English language — also Spanish speaking amateurs have the same problem.

"But with the advanced technology using translators will make it easier for international QSOs."

That's rather mind-boggling — imagine a Japanese or Spanish speaking radio amateur talking into his microphone using his native tongue, but the QSO being transmitted in English.

IT'S CROWDED ON VHF IN JAPAN

Tokuzo said with the lower part of the VHF spectrum becoming very crowded in Japan the trend is to move to higher bands. The JA 2 m band is only 146-148MHz.

While Australia has had VHF repeaters for about eighteen years repeaters have only been permitted in Japan since 1982.

The 23 cm band, which has an advantage of a wide bandwidth allowing many repeaters to serve small areas, is getting popular in JA.

For this reason Icom has produced both mobile units and repeaters to meet the market.

At least thirty repeaters for 23 cm have been submitted to the JARL for approval.

Experimentation with Packet Radio has begun in Japan following a trend to this relatively new technique in the USA, Canada and Australia.

Photograph by Ken McLachlan VK3AH.

Jim VK3PC welcomes Tokuzo JA3FA to the WIA.

NO-CODE LICENCE A GOOD THING

The Icom President and long-time radio amateur said he believed having a no-code licence had been a good thing for Japan.

He said the no-code licence had meant many more people could join the hobby, including some six year olds.

Tokuzo said while people of all ages can study the theory for their licence, he's convinced there were those who, perhaps due to age and other factors, were unable to attain code skill.

He said it was the deliberate action of an officer in the Japanese Post Office in 1952 to have a no-code licence introduced with the resumption of amateur radio after World War 2.

The aim was to make it a little easier for people to become radio amateurs with the thought in mind that Japan had to improve in the field of technology.

Tokuzo said the advantages of a no-code licence include the long-term higher level of technology among the citizens of Japan — and has contributed in some way to the enormous technological advancements made by Japan.

He said the no-code licence has attracted young people who have since grown-up to be engineers, and this licence has also enabled families to have husband, wife, and children all radio amateurs.

Japan has the largest number of "Amateur Families" in the world, and this is evident when you look at JA statistics which show one million radio amateurs who share 600,000 licenced amateur stations.

Tokuzo said he firmly believed if Australia had a no-code licence, similar to Japan, at least thirty percent of Australia's 140,000 CBers (42,000) would become radio amateurs.

There's three grades of licence in Japan: 1st Class, all bands and modes with 500 W output, 2nd Class with same privileges as 1st class but with 100 W output, No-code licence holders can use 10 W on bands except 20 and 10 m, and a No-phone licence, same bands as No-code licence but CW only.

HOBBY COMPUTERS AND CB AFFECT AMATEUR RADIO

The amateur growth rate in JA had been around ten percent a year, but has fallen to about seven percent recently (compared with Australia's growth of five percent).

Tokuzo said this slow-down in growth is caused by many youngsters turning to hobby microcomputers and the personal radio (CB) which was introduced in November 1982.

But he's confident it's only a temporary slow down and another upturn will occur when some of the computer fans and a large number of personal radio hobbyists move up to amateur radio.

Tokuzo explained how in the first twelve months of personal radio there were 400,000 licences issued.

It uses five watt eighty channel FM radios operating on 900 MHz and is rather a unique lottery-type system.

The radios have a touch-pad, the operator hits a random combination of digits, these are sent by data signals on a call-channel.

Should there be another personal radio sending the same combination the radios electronically shake hands over the air.

An automatic search is made for a vacant channel, the radios then QSY by themselves and the operators can then talk.

To pre-arrange a QSO operators simply decide to call each other using a digit combination of their choice on a planned sked.

TOKUZO INOUE JOINS WIA

Japan is the land of a million radio amateurs — one of them Tokuzo Inoue JA3FA.

At the end of the interview with this article's author he had a broad smile and was outwardly proud at becoming Japan's first member of the Wireless Institute of Australia.

He has said "sayonara" to VK soil only temporarily with plans to visit Australia again next year and is looking forward to meeting WIA members — listen for his call on the DX bands.

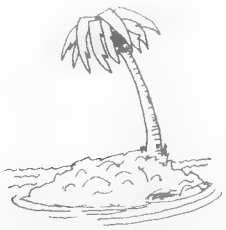
Contributed by Jim Linton VK3PC. **AR**

WHISPERS

Heard a whisper that the popular Kenwood TR2500 2 metre handheld will be replaced by the TR2600 which will be even smaller and have more features.

John Hill, VK3WZ

AR



HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

I was fortunate to catch up with Duane, W6REC who was on the eventful Kermadec Islands expedition, whilst he was passing through Melbourne. It was indeed a pleasure to meet this quiet and unassuming gentleman and hear of his thoughts on DXing and the trials and tribulations that the group experienced prior to, during their trip and whilst on the island, the shattering news of the yacht "Shiner" being damaged beyond repair and their trip home in a freighter.

Duane has many talents and hobbies. He is a registered Paramedic and a Medical Technician who specialises in electronics concerning artificial heart research and worked with the group that later implanted the first artificial heart in Barney Clark. Other strings to his bow are that he is a registered private pilot, and has hobbies of collecting and restoring antique BMW motorbikes, teaching and playing pool. His coaching of a YL team led them to winning two championships but probably the biggest thrill of his hobbies is CW DXing.

Duane trying out a friend's BMW whilst in Melbourne

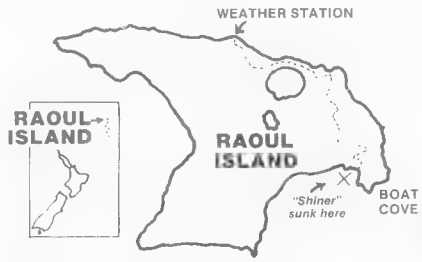
The Kermadec group included five members of Auckland University's marine biology and zoology departments and four amateurs, John ZL1AAS, Ron ZL1AMO, Roly ZL1BQD and Duane ZL0AJW which were all under the leadership of Dr John Craig. Dr Craig's wife, Anne Stewart, who is studying for her Doctorate degree, was a member of the group that had intentions of studying tuis, bellbirds and vegetation on the off shore islands in the Kermadec group.

The party left port for their destination a couple of days late on what was to be a pretty uneventful trip, except for a few who were not used to sailing and ended up being a little sea sick. Duane remarked that *"It was a wonderful sight to watch the dolphins playing around the yacht, a few fish were caught and we had a very competent crew and captain in John Taylor, an Englishman, who was also a marvellous host"*.

On approaching Raoul Island, the weather was deteriorating and it took them about six hours to land at the boat cove on the south east corner of the island. The "Shiner" anchored about 600 metres from a rocky faced shoreline and the personnel and all equipment was transferred to a rubber inflatable boat with an outboard engine and transported to the shoreline. The equipment and personnel were then swung ashore by a gantry, where the equipment was loaded into containers and taken by a "flying fox" to the summit. Each person who went ashore used the steep gradient pathway, which is the only access to the top. Duane said that *"the signs en route to the top were hilarious and typical of the sense of humour of the Weather Station's crew who they were to eventually meet and even in this remote area one could not get away from 'parking meters' as there was one located, with a suitable caption at one of the 'rest' points on the steep upward climb"*.

Their equipment was then transported by the island "vehicle" to near the weather station where they set their equipment up in a small hut, which was warm, dry and comfortable. This area was surrounded by Norfolk Island pines and one of the scientific expedition members volunteered to climb the pines and erect some of the antennas which were at a height of twenty five metres and adjacent to the cliff, which gave them a tremendous take off advantage.

The drama commenced soon after the party arrived, when a deep extra tropical low closed in on the area producing extra strong winds and strong seas that caused the ferro-concrete yacht to drag its three anchors, break its tieline and crash onto the rocky coast. The vessel's hull was badly holed and appeared to be a write-off. Two members of the weather station party helped the crew wade ashore through the surf as the yacht sank and they spent the night with them in a beach hut. Next day the group walked over the rugged volcanic terrain to the weather station on the north coast. Very little equipment was lost but Duane, as with the others lost some personal items, including his address book of friends that he was going to look up on his visit to VK. So if Duane didn't catch up with you, the reason has been explained.



Dotted line shows the path taken by the crew and their helpers.

Eventually arrangements were made through official channels to have an inter island trading ship, the "Vili", with a Tongan crew, diverted to Raoul Island to pick them up at the vessel's earliest convenience.

Whilst awaiting the pick-up, the amateurs were constantly notching up contacts when they were free from other duties. Duane said that *"Roly ZL8BQD and Ron ZL8AMO notched up about 10 000 QSOs each, John ZL8AAS around 4000 and I made about 5000 contacts"*, not a bad effort seeing that the expedition was cut short and other problems including power sources went haywire at times.

Duane in his own words described the island as *"being very interesting, an unusual place and that in his opinion the men from the scientific group could be termed 'supermen' for the way they went about their duties and the help they gave to the amateurs, also the five men attached to the Meteorological station under the leadership of Mr Mike Bourke were marvellous in their assistance and they had a tremendous sense of humour which eased a tense situation"*.

With the "Vili" laying offshore the evening before departure, the winds were still very strong causing the surf to run extremely high, there were thoughts that they may not be able to depart. Next morning however it was calm and allowed a reasonably easy loading and departure. As the "Vili" departed and with the island still in sight, one could see the clouds rolling in again and shrouding the area, so apparently luck was with them.

Duane said that *"QSLs for the expedition went to each individual operator, except mine which are being looked after by ZL1BQD"*. Also he would like thanks extended through this column, particularly to the Northern Californian DX Foundation for their extreme generosity, along with other clubs and the individuals who had dug deeply into their pockets when they sent their QSL cards that had been received in New Zealand by their return.

Duane decided before he left VK he would like to do a little DXing, and it was easy to convince him that there was no better place to go to than Lord Howe Island with its newly allocated VK9L prefix. Arrangements were hurriedly made, and a phone call to Dick VK9LH confirmed that the visit was on.

All Duane required was a power supply for his rig and this was kindly loaned by Sandy Brucesmith VK2AD, from Trio-Kenwood (Australia) Pty Ltd in Sydney, after a telephone call from a friendly VK3 amateur.

Ken VK9LK, the islands only medico.
Photo courtesy Gil VK3AUI

Dick VK9LH, was at the airport to meet Duane and coincidentally the Editor of AR Gil VK3AUI was departing on the same aircraft after an enjoyable holiday on both Norfolk and Lord Howe Islands, so at least they had time to be introduced before departure.

Dick VK9LH. Photo courtesy of Gil VK3AUI

Duane was signing VK3DLA/VK9L and would make the two resident operators Dick VK9LH and Ken VK9LK (ex VK2BKE) quite happy by taking the CW heat off them.

QSLs for Duane calls of ZL0AJW, 3D2DA, VK3DLA and VK3DLA/VK9L go to his home QTH, Duane L Usherman, 100 Sanders Street, Fort Bidwell CA 96112, USA.

Meanwhile the Kermadecs will be represented by Warick ZL8AFH until the end of his tour of duty which is in November and it is quite possible that a DX orientated operator from another Meteorological outpost will travel north and be in the crew that leaves to take over the 1984/1985 posting.

IARU APPLICATIONS

According to the RSGB News Bulletin, two new countries have applied for membership, China has applied to become a member of the IARU. This is really a step in the right direction for the hobby to be fostered in that country after its shut down of amateur operation for more than a decade.

The other country is Vanuatu which was formerly the New Hebrides.

BY4AA in action.

IRAQ

YI1BGD continues to operate at various periods with apparently many new operators being trained for the microphone duties. One of these operators is a YL whose name is Saad. This one would be a must for the YL hunters.

With YI1BGD having proved so successful, the authorities have set aside prefixes Y1 and Y8 for districts in that country. The good news is that YI9 has been specially allocated for visitors and YI0 for special events.

These moves by the licensing authority sounds promising for the escalation of the hobby in this country.

WERE YOU CAUGHT?

Did you QSO AP1RL, PH0OL and F0OL? You guessed it, they were operational on the 1st April. I missed out, I wasn't on the air that day.

NEW STATIONS

A new station has appeared from the Comoros. It is Bill Barnett who signs D68WB and his QSL information is PO Box 540, Moroni, Comoro Island.

Another new one is from Mali-TZ2XN, who is DK2XN, and he hopes to be in that country for a one to two year stint. QSLs via DK2XN or DK3HL.

Yet another new one that has been heard on 20 metres is John 9Q5JE, from Zaire. Bureau QSLs go via DJ5TY or direct to John Erbacher, PO Box 12646, Kinshasa 1, Zaire.

REPUBLIC DAY

The call ZS5RSA was allocated to the Durban Branch of the South Africa Radio League for the fifth consecutive year to be used on all bands and modes for Republic Day, 31st May 1984. As usual, a special QSL card, which is quite attractive, has been struck for the occasion.

WINNERS

The 1983 IARU Radiosport Contest had six entrants from Australia. The multi-operator section was won by VK6NCW and VK6NSD and the single operator honours went to VK2BQQ. Congratulations on your high scores in a difficult contest with the way the propagation was over the operating period.

SENEGAL PREFIX CHANGE

The authorities in Senegal have altered the prefix to indicate the eight regions in that area. These are 6W1 Cap Vert, 6W2 Casamance, 6W3 Diourbel, 6W4 Fleuve, 6W5 Senegal Oriental, 6W6 Sine-Saloum, 6W7 Thies and 6W8 Louga.

The suffix of all operators will stay the same such as 6W8DY becomes 6W1DY.

DXCC APPROVAL

TN8EE has eventually produced satisfactory documentation to the ARRL DXCC desk and his operation is approved.

PROJECT BLIZZARD

Last month it was mentioned that it was unknown whether there would be any amateur involvement in the expedition. It has since been learnt that Meg Thornton, Ross Vining and Jonathon Chester were so impressed with the hobby and what they saw on Heard Island, that they decided to study for the exams. At this date each has passed certain sections of the licence test and are awaiting the next examination date to finish off the remaining subjects and apply for a licence. Best of luck to the trio on the examinations and their project.

ILLEGAL OPERATION

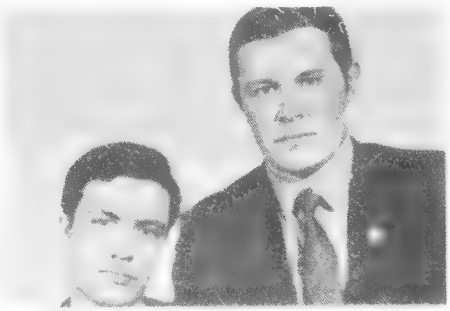
Jim FB8YK, in a QSO with Gray VK3JQ, reported that a station used the call FB8YK during 1983 with a Hobart address and this operation was illegal. It appears that it was a well planned hoax, as many DX columnists including myself reported the information.

Jim will only QSL to anyone who appears on his log sheet and his Manager is his father, F6EMY.

If you worked the "phantom" FB8YK and are wondering why you did not receive a card, you now know the reason. Apologies to any operator that may have been inconvenienced.

OBLAST HUNTERS

Alf UA4WCE, and Willy UA4WBJ, plan to activate the rarest oblast of the USSR, oblast 049. They hope to use the call UI8C in September of this year, but it depends on the availability of efficient and dependable radio equipment being available. Any correspondence on assistance or scheds that can be given should go to PO Box 15, Izhevsk, 426064, USSR.



from QRZ DX

L-R Willy UA4WBJ and Alf UA4WCE.

NEW FRENCH CALLSIGNS

As from the 1st January 1985, FC Corsica becomes TK and FB8 will use FT8. More joy for prefix hunters and probably a few more changes will be announced later in the year.

AX9ITU

This rare prefix and suffix was operated from Christmas Island on 17th May 1984 to commemorate the formation of the International Telegraph Union, to be later known as the International Telecommunications Union, in Paris on the 17th May 1865. QSLs for this operation go to VK9XI.

SPRATLY ISLANDS

Apparently according to the RSGB News Sheet, Chito DU1CK is planning another trip to the Spratly Islands and the reason that he didn't reply to many of the QSLs from his last expedition was that "he stopped sending out cards for his previous expedition when the ARRL refused to accept them for DXCC and he has just heard that his cards are OK".

My questions are, why didn't he honour the cards whether the expedition was acceptable or not and will he honour the cards before he leaves on this new expedition? I will leave my other comments to the readers' imagination!

HELP REQUIRED

Robin LA9PCA is asking DXers and DX

clubs to assist on two DXpedition projects. The first is that he is seeking assistance from DXers worldwide to write to him and support his application for a ZA Albanian licence later this year where he plans to spend his vacation. He feels that letters from worldwide sources could help change the authorities minds regarding the hobby.

Robin's second request is of a similar nature. The LA authorities are in the process of choosing a vessel to use for their Antarctic expedition and Robin plans to urge them to choose one large enough to accommodate several DXers with the intention of operating 3Y. It is not clear if it is 3Y Bouvet or 3Y Peter 1st Island or both. All DXers in VK and worldwide, I am sure would settle for either, but preferably both. Here's hoping something is organised.

Robin's address is C/- PO Box 88, N-5014, Bergen University, Norway.

Robin is assured of receiving two letters to assist a different psychological approach to gain operating privileges for these two much wanted countries.

ANOTHER BOUVET APPROACH

The LA DX group under the guidance of Joergen LA5UF and Einar LA1EE are working on a Project 3Y 1984/1985 that would enable a 3Y expedition to leave from South America to land on Bouvet, the last stop of a voyage lasting two months, for two or three days in January or February 1985.

This all depends on the assumption that suitable transport, including a helicopter, can be found, also other transportation alternatives or combinations that would be suitable for a DXpedition are being explored by the 3Y Project Committee.

This group is seeking assistance in any form and Joergen's address is Joergen Moel, Project Manager, 3Y Project 1984/85, Munkerudasen 12E, 1165, Oslo 11, Norway. If the project does eventuate there can be no guarantee of amateur operation from Bouvet.

The Bouvet information would not be complete without relating a strong rumour that is circulating around the bands. The rumour is that a group of operators from ZS5, with a scientific group, are intending to make an onslaught on this lonely island.

With two and a "half" different approaches to a very difficult and much wanted prefix, the lucky ones may have another country or two in the log by mid 1985 even if they all arrive at the same time. Shudder the thought at such a coincidence.

CARDS ASTRAY

Apparently many of the cards sent out after the LU/Z operation of 1982/1983 were stolen or went astray. If you are one of the unlucky ones that didn't receive a card then please resubmit for LU3ZI via LU1DZ, LU5ZA, ZE, ZI and ZR via LU2AH, Gorostiaga 2320 P-15A, 1426 Buenos Aires, Argentina.

4U1VIC

Many VKs have worked 4U1VIC during their brief appearances on the band and originally it was believed that it would become a new country. This was quashed by the ARRL DX advisory committee but apparently the operators at 4U1VIC may have found a loophole in the DXCC country criteria that will allow the Vienna International Centre to be accepted as a new DXCC country.

So do not lose that very nice 4U1VIC card if you have received one or if you have worked them it would be prudent to apply for a card. The QSL address is via the Austrian Bureau which is PO Box 999, A-1014, Vienna, Austria.

Whilst on the subject of the ARRL DX Advisory Committee (DXAC), it is believed that they are considering the status of Baker, Howland and American Phoenix Islands, particularly the area which is under dual control of Britain and the US.

Further news on the DXAC is that it has completed its deliberations on the Alaska DX Associations application for DXCC country status for the Pribilof Islands.

It was a deadlocked vote, eight for and eight against. This means that the DXAC are forced to look at the "status" again and vote again. No time is scheduled for the next vote.

It is apparent by the voting that the case put forward by the ADXA must have some substantial merit.

ANZA NET

The ANZA Net on 21.204 MHz has been in existence for a long time and Percy VK3PA would like it known that it still operates daily with check ins around 0445 to 0500 UTC. If conditions are poor on fifteen metres they QSY to 14.135 MHz +/- QRM. If you can make the time, you are assured of being made very welcome.

REPUBLIC OF ZAIRE

A much needed country that is presently being activated by 9Q5JE who gives his QSL information as PO Box 12646, Kinshasa 1, Zaire or if you prefer via the Bureau to DJ5TY.

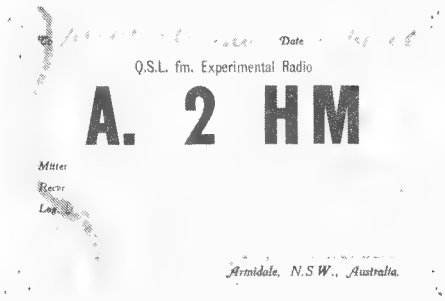
MARCONI'S ANNIVERSARY

A commemorative station at Marconi's house on and around 25th April signing IY4FGM was to commemorate the 110th anniversary of his birth. QSLs for this operation go to I4IKW, PO Box 3113, I-40100 Bologna, Italy.

ETHIOPIA

There has been activity from this area by Tensay ET3PS, around 1300 to 1500 UTC between 14.195 to 14.205 MHz. He gives his QSL information as PO Box 6128, Addis Ababa, Ethiopia. There is no reason to doubt his authenticity at this stage as Zedan JY3ZH has also had him in tow on his Nets, so the adage of if you can hear him, work him and worry later about whether the card will turn up and that the ARRL will accept the operation.

ANTIQUE CARD



A2HM was operating in 1926

CYCLING AROUND VK

A note from Gerald VK6AGT, confirms that Richard ex VP8ANT, is in VK as he called in to see Gerald in Albany on the 29th March. Australian hospitality prevailed over an evening meal. Gerald and Richard had a lot to discuss as they both come from the same town in England.

Richard's plans were to cycle to Perth and then across to the eastern states, with the hope of getting to Lord Howe Island for a mini expedition before his six month visa expires.

Any other reports of Richard's visits to amateurs would be appreciated by this column.

FAROE ISLANDS

Four operators will activate the Faroe Islands from the 18th to the 28th June. The operators will be Kristian OZ5FFG, Ole OZ5DL, Preben OZ5UR and Joergen OZ8AE. They will operate on 1.837, 3.510, 7.010, 10.100 - 10.109, 14.015, 18.070, 21.015, 24.900 and 28.015 MHz on CW. For SSB they will use 3.645, 3.795, 7.045, 7.070, 14.210, 21.210 and 28.510 using their home calls /OY.

Many will remember Joergen OZ8AE as he used to sign VK0JC during 1978-1980 whilst MM on his Antarctic trips aboard the Nella Dan.

THANKS

Thanks are extended to the following Australian amateurs for their support by their contributions and include VK2KZ, PS 3BY, PC, YJ, YL, AUI, DLA, 6FS, HD, IT, NE, RU, AGT, and L30042 DX Newsletters and magazines include 73, VERON, QRZ DX, RSGB NEWSLETTER, RADCOM, QST WORLD RADIO, KARL, cqDX, KH6BZF REPORTS, QST, ARRL NEWSLETTER, JA-CQ and Jan and Jay O'Briens QSL MANAGER LIST Overseas amateurs who have assisted with contributions include G1EOD G3NBC, I8SAT, W6REC, LA9PCA, OZ8AE, and JH1KRC Sincere thanks to one and all for their assistance and it is hoped that the postman delivers that rare one that you have been waiting for this month

QSL MANAGERS AND QTHs OF INTEREST

3D2DX-VE5RA, 3D2HE-VE3FXT, 3D6AK-G3WPF, 5H3BH-Buro-SM0EAI, 5U7ES/M-RSGB, 5Z4DP-G4AGH, 6V1A-PO Box 971, Senegal, 6W1AR-DJ3AS, 9H9MHR-9H Bureau, A4XJQ-G4MSX, A92DU-Box 22381, Bahrain, C6ADR-KC8ON, CT0BI-CT4NH, DK9WB/ZP9-DK9WB, FH8CR-PO Box 28, Dzaoudzi, 97610, Mayotte Island, HK0HEU-HK0FBF, J87BI-KA2GMT, JW5NM-LA5NM, KC6IN-JA6BSM, N8DCJ/8P6-KZ8Y, OX3SG-LA5NM, SV5GX-Box 157, Rhodes, SV5TH-Box 282, Rhodes, T30AT-G4GED, TA1MO-PO Box 679, Sisli, Istanbul, TU73-AK3F, VE7DRO/VE8-VE7DRO, VP2KBU-KC0FW, VP2KCA-K0GU, VP2MKS-K5VZN, VP8KF-G3VPW, VR6KY-NE5C, ZB2FX-G3RFX, ZM7VU-F6DYG.

CW SWLing with Eric L30042.

28 MHz
DF3FI, EA4CKV, EA6KZ, FK8BU, HB9CSA, I0KNX, IT9QDS, JA1KI, OK1ZL, SV1SQ, UK5MAF, W7ORS, KA9ABC, W9LF, YC2BDJ, YU1OVQ, 4Z4DX

21 MHz
N7ET/DU6, FK8CE, HA5KDQ, HL9JT, KA2CW, KH6AFS, KL7GU, KX6DS, LA1K, OE6HAD, OH6GN, PA3KAW, UK0BLC, UJ8JAS, VK8BE, VS6HI, YC2BLC, ZL0AJW/8, ZM7VU, 5W1EJ

14 MHz
CT1BCM, EA3CUU, FK8EJ, G3XUN, TG9NX, TI2CCC VU2JXO, ZL8AMO, 4K1ANO, 6Y5SG.

10 MHz
G3DRQ, W1FZY, W2ZT, W8EGB, W0TIV, ZM7VU.

7 MHz
VE7FKZ, 4X4WF

1.8 MHz
VK2AYK, VK3AXH, VK7RY.

Heard and worked does not appear this month due to lack of space.

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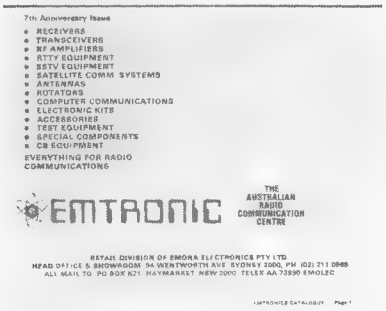
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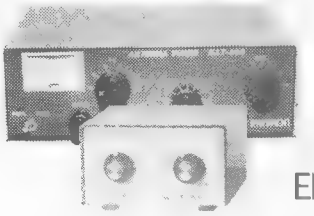

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WICEN NEWS

Brian Mennis, VK4XS
11 Jethro Street, Aspley, Qld 4034

IPSWICH WICEN IN EXERCISE WITH THE STATE EMERGENCY SERVICES

"A tanker loaded with dangerous chemicals has crashed in the centre of Ipswich." This was the scenario for a joint exercise involving the Queensland State Emergency Service and WICEN on Saturday the 7th April 1984, in which members of the Ipswich City and Moreton Shire Unit of SES and 17 WICEN operators took part.

The aims of the exercise, to quote from the SES briefing paper, were:

1. To test co-ordination and control of two or more organisations operating together with a combined services EOC.

2. To demonstrate effectiveness of SES and WICEN to provide field radio communications to augment statutory services communications in event of disaster or threatened disaster within Ipswich City precincts.

3. To test and/or determine measures necessary to relocate a combined services EOC during an operation without loss of co-ordination and control.

In this exercise, the chemicals in the "crashed" tanker had combined to create a possible explosive situation, but more worrying was the fact that the wind was blowing toxic fumes in a southerly direction, and evacuation of residents in the affected area was necessary. As the evacuation progressed, roads were blocked off to prohibit entry into this area. The role of WICEN and SES was to provide communication to the road blocks, and to move with them.

Again to quote the briefing paper:
"To assist the police and fire brigade by providing staff for simulated road blocks and by providing radio communication with same back to the two respective HQs and co-ordinated at an EOC staffed by SES personnel."

The WICEN contingent was led by Sid Lyon, VK4SL, and nine other members of the local WICEN group from the Ipswich and District Radio Club. They were assisted by five operators from the Brisbane WICEN, and one each from Laidley and Gatton. In addition, the Queensland State Co-ordinator of WICEN, Ken Ayres, participated by maintaining a 40 m link from Ipswich to his home on the Gold Coast. Operations in the disaster area were on Channel 6500 simplex, and, apart from a very occasional dead spot, were very successful.

During mid-afternoon, a simulated wind shift threatened to engulf the EOC in the toxic fumes, and it had to be evacuated. The move was very successfully carried out, without any loss of communication.

It must be added that, all during the exercise, it was pouring with rain, and that, most certainly, was not simulated.

As was to be expected, some problems with procedures were found, and some delays occurred, but as this was the first major exercise for the Ipswich group, this was of no great worry, and will lead to greater efficiency in the future.

Both the local SES Controller and the Regional Police Superintendent praised the co-operation and effectiveness of WICEN in the exercise, and predicted that future operations, either simulated or real, would greatly benefit from the day's exercise. Certainly, the aims of the exercise were acheived.

AR

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See review in ARA – Vol 6, Issue 3

AGFA

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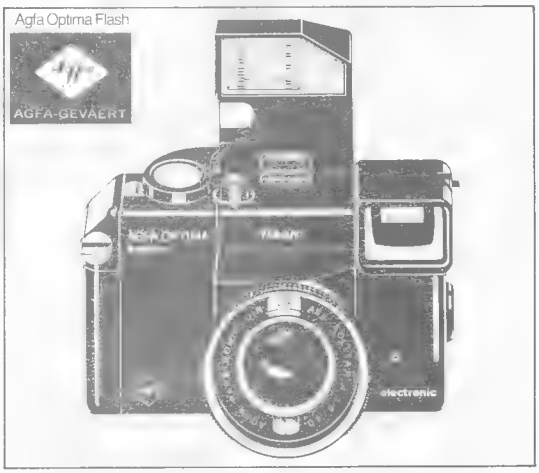

AGFA – PREFERRED BY THOSE WHO KNOW

ALARA

Australian Ladies Amateur Radio Association

Margaret Loft, VK3DML
28 Lawrence Street, Castlemaine, Vic 3450

Hello again to all, the year is going very quickly.

Main item of news this month is the plans for our get together at Mildura, a slight change of venue to the Postal Institute Hall for the lunch on Saturday, 15th September. Approximately forty have booked for the weekend. Marilyn VK3DMS is in charge of arrangements.

PLEASANT MEETING

Late in March I spent a most enjoyable afternoon with Austine VK3YL and her OM Will. They were holidaying in Bendigo. I went up to Bendigo and took them to the home of Joan VK3NLO and Graeme VK3AGS. We had a lovely afternoon chatting and it was very interesting to hear of the early days in radio. One comment Austine made was how good it is now with so many YLs, we can have get togethers etc. Very different to the early days when only men went to meetings. Austine did not go to meetings because she inhibited the gentlemen's language.

Certainly it must be heartening for the pioneer YLs to see the numbers of YLs now enjoying the hobby they have enjoyed for so many years.

AGM

Ladies don't forget our Annual General Meeting on Monday, 23rd July. Nomination forms will be in the Newsletter, so if you feel you can contribute to the running of ALARA please fill in a form and send it on to the Secretary. ALARA is growing every year and we hope it continues to do so with YOUR help and support.

NINTH BIRTHDAY

On Monday, 27th August ALARA will celebrate its ninth birthday; please mark these two dates on your calendar and help us celebrate.

Welcome to new member Joy VK7YL, joining date 12th April, 1984.

ALARA CONTEST

Don't forget our contest on Saturday, 10th November, 1984; this year we are adding a new segment to the contest. A CW section in memory of Mrs McKenzie. This has been made possible by the donation of a trophy by the Townsville Amateur Radio Club.

Full details of the contest will appear in future AR columns. Congratulations to Joy VK5YJ for her excellent job of co-ordinator for the communications for the yachting trials held near Adelaide recently. Held over ten days with a large number of operators, it was a big job. The VK5 division awarded Joy one of their citizenships for her efforts.

Until next month 73/33/88.
Margaret, VK3DML
AR

Meg VK5NOE

Karin LA8UW and OM Ole LA2RR

EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

Recent discussions with DOC officials have elaborated the new examination arrangements for both levels of Theory at each examination date. Negotiation with postal officers have ensured that this facility will be available to country AOCP candidates as has been the practice and it is expected that this will be extended to allow for Novice examinations also at country Post Offices. This will be a big help to many of the more distant candidates.

One problem arising is that not all Post Masters may be willing or able to carry out the CW examination. This should not present too much difficulty with the easy availability of cassette recorders — the CW receiving is already provided in tapes. It may not be so simple for the candidate to put the sending section onto tape. There would probably have to be some provision for the candidate to check that the segment had been recorded, and would possibly lead to some delay in the notification of results. It is expected that the candidate would be required to provide all necessary equipment. I would be interested to hear members views on the idea of "exams on tape".

While on the subject of exams perhaps I can repeat some of the comments I have made previously. In all my dealings with DOC officials I have found nothing to suggest that there is any predetermined number of passes to be allowed, or that the Department uses the exams to limit the numbers entering the amateur ranks. Statistics for pass rates by state for each exam are available on request.

Some candidates sitting for a second or third time seem to be upset that they get a different paper each time. It is obviously part of DOC policy to rotate the papers, but it is also policy to add in six to eight new questions to existing papers for subsequent use. It is very rare for a completely new set of fifty questions to be used — reusing the questions is one way of maintaining the standard at an even level.

First time candidates should not expect that the exam will be just fifty questions taken at random from the various publications. Candidates should also realise that there is a pattern to all the papers, with a set number of questions from each section of the syllabus. However not all sections receive equal attention — it is obvious that some are more important than others. We try to keep the same distribution on the sample papers.

I have not analysed the papers I have seen in depth, but the question distribution seems to conform fairly well to the plan.

Once again, if you have specific complaints about any of the exams, please let me know. I do hear a lot of comment on air about the inadequacies and failings of the present system, but I cannot try to make enquiries or investigate faults unless I have the details direct rather than second-or-later-hand.

I would be pleased to receive any comments on the present system in particular your views of what should be included in an impending review of both syllabuses. There are a lot of topics which should be added to the present syllabuses. *What can we leave out to compensate?*

73 Brenda, VK3KT
AR

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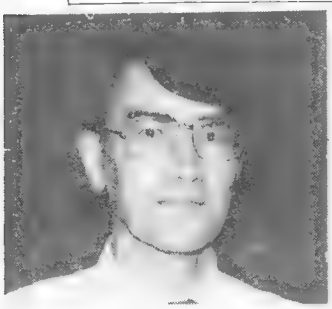

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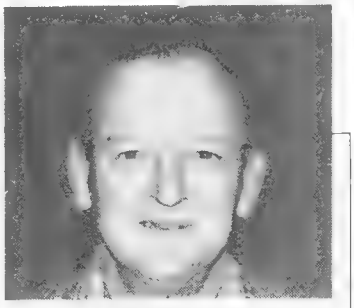

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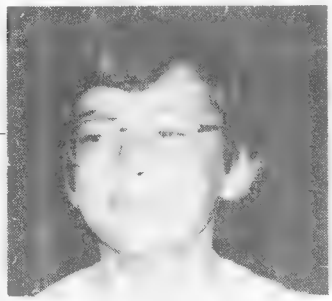

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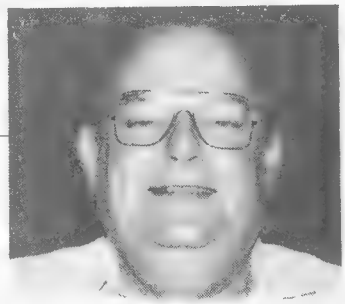

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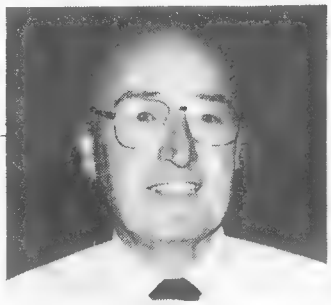

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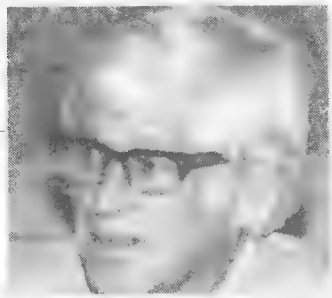

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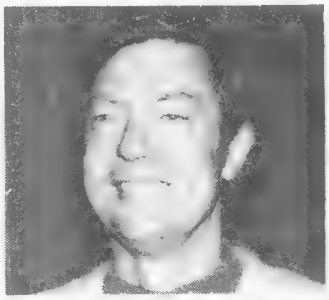

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Federal Office

Photographs & Processing by Ken McLachlan VK3AH.

VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time, and indicated as UTC —

AMATEUR BANDS BEACONS

Freq	Call Sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.020	GB3SIX	Anglesey
50.075	VS6SIX	Hong Kong
50.945	ZS1SIX	South Africa
51.020	ZL1UHF	Auckland
52.033	P29SIX	New Guinea
52.150	VK0CK	Macquarie Island
52.200	VK8VF	Darwin
52.250	ZL2VHP	Palmerston North
52.300	VK6RTV	Perth
52.310	ZL3MHF	Christchurch
52.320	VK6RTT	Carnarvon
52.325	VK2RHV	Newcastle (1)
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL2SIX	Blenheim (2)
52.510	ZL2MHF	Mount Climie
144.019	VK6RBS	Busselton
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.480	VK8VF	Darwin
144.550	VK5RSE	Mount Gambier
144.600	VK6RTT	Carnarvon
145.000	VK6RTV	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.410	VK6RTT	Carnarvon
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton

(1) Graham VK2ZZV advises VK2RHV the new Newcastle beacon is now operational, and runs 10 W to a ¼ wave groundplane antenna. It has already been heard in VK5.
(2) ZL2SIX is a new beacon at Blenheim on the eastern side of the North Island.

In other beacon news you will note KH6EQI is no longer listed as I am informed it is not on the air. Similarly, VK1RTA on 144.475 is also temporarily off the air for a frequency and call sign change, and a new halo antenna. The new frequency will be 144.410, the new call sign VK1RCC. Thanks to Eddie VK1VP for the information on the Canberra beacon.

TWO METRES AND 70cm FROM SYDNEY

Gordon VK2ZAB advises activity on 144 and 432 MHz during March was about average, with the stations to the north and south west who have been reported in previous issues are still putting signals into Sydney on both bands. Doug VK3UM is a regular signal and Bill VK4LC occasionally.

Roy VK2TR in Cooma has been working VK3UM at the weekend scheduled times. Roy was worked by VK2ZAB at 5x3 on 4/3. The path is rather difficult.

Neville VK2DR in Bathurst now has four log periodic yagis totalling 88 elements on 70 cm, and is looking for contacts. Contact with VK2ZAB on 13/3 was 5x3 both ways.

Peter VK3ZYN at Lovely Banks near Geelong was heard by VK2ZAB on 16/3 and 17/3 on 2 metres. Contact was made with much difficulty.

Tony VK2DVD at Tamworth puts in a good SSB signal to Sydney on 2 m and is only using vertical polarisation at the moment! Thanks for writing Gordon.

NORFOLK AND LORD HOWE ISLANDS

Before Easter, Gil VK3AUI had a short holiday trip to Norfolk and Lord Howe Islands. In spite of severe luggage limitations he took an IC 505 with a car whip, lent by VK3NM and a wire dipole.

Whilst on Norfolk Island YJ8RG, ZL2AJC, ZL2AQR, ZL2TPY, ZL2TYN and ZL3TIC were worked. All except ZL2AQR were worked on 10 watts to a whip on a hire car. ZL2AQR was worked with three watts to a dipole at about two metres high. VK9NS was worked also. The contacts took place on the 8th, 9th and 10th of April.

Photograph by Gil Sones VK3AUI.

Jim VK9NS.

Gil met John VK9JA, Jim VK9NS and Kirsti VK9NL. A pleasant evening was spent at Jim and Kirsti's home.

Jim VK9NS has a good 6 metre setup and keeps the rig running all the time. Jim is also working on equipment for the satellite.

From the 13th to 18th April 6 metres was monitored on Lord Howe Island. Unfortunately only TV was heard on Monday 16th April but it was very weak.

Gil met Dick Hoffman VK9LH and his wife Noelle and Ken VK9LK. After a very pleasant stay Gil returned home on the 18th April.

Photograph by Dick Hoffman VK9LH.

Gil, 6m mobile on Lord Howe Island.

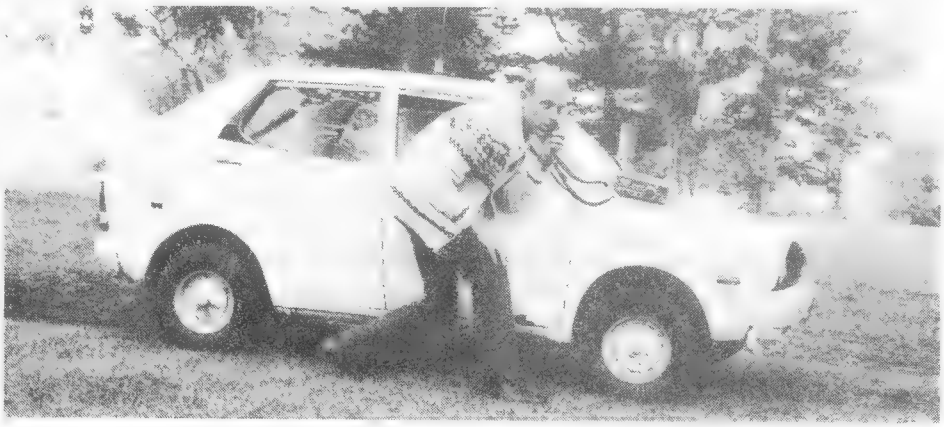
RECORD BREAKING CONTACTS

From "Break In" February 1984 comes the following:

"New world records for both the 10 GHz (1621km) and 1.3 GHz bands (1963 km) were made by I0SNY/EA9, an Italian amateur visiting Ceuta, Spanish Morocco last July. The two way contacts were made to Italian stations in Sicily and the Italian mainland. This is further evidence of the long ducts that often form over the Mediterranean.

"The nineteen year old 144 MHz Overseas ZL record was broken, when on 15th January 1984, ZL3AFN contacted H44SR on Malaita, Solomon Islands. This is a distance of 3769 km or 2341 miles. Confirmation has still to arrive."

Congratulations to the parties concerned. It is certainly making it very hard for VK stations to maintain their former lead on the distances scale — the prime path between



Photograph by Gil Sones VK3AUI.

A self-portrait of Gil operating on Norfolk Island.

Adelaide and Albany has now been well and truly eclipsed by the Spanish Morocco contact on both 1.3 and 10 GHz. We will now have to look to New Zealand making the other end of the contact and this will be very difficult from Adelaide, as will any chance of contacts to the north or the islands of the Pacific, most difficult from VK5, but certainly easier from VK2 and VK4.

YL ACTIVITY ON SIX METRES

Also from "Break In" comes news of the first ZL/VK YL to YL QSO on 6 metres, when Mary VK4PZ in Rockhampton was worked by Carol ZL2VQ while operating from the QTH of ZL2TPY on 14th January, 1984. A later contact was with VK2DFW, and being the first contacts Carol had ever made on 6 metres she found the experience interesting. (Maybe another convert to 6 metres? . . . 5LP)

SIX METRES IN JAPAN

Graham VK6RO has sent me the V-UHF Band News page from the Japanese CQ Ham Radio, which indicates that on 50 MHz the DX contacts had fallen somewhat. VK stations were worked in December 1983 on 4/12, 11/12, 16/12 and 18/12. Other areas to be worked included New Zealand on 2/12, 3/12, 4/12, 15/12 and 16/12. Other areas included hearing the VS6SIX beacon, FK1RU, FK8EM, FK8EB, ZL4OY/C, JD1BBG, H44PT, and VS6XMT.

Separately from the above and which will be of interest to many, was the report I received courtesy David VK5AMK that Hide JA2DDN had heard the VK0CK beacon on Macquarie Island on 9/4, but no contact had been made. That's quite a long way, but I do not know if it is the first hearing of a VK0 on 6 metres from Japan, and I have no other information.

Graham VK6RO also advised his long time friend, Nori JR6IGG, had passed away in December 1983, at the age of thirty two years with liver problems. Nori had worked nearly seventy countries on 6 metres, and provided one of the strongest 6 metre signals from Japan, and he will be sadly missed from the band, being so widely known throughout Australia.

Also from the Japanese CQ Ham Radio is a list of the smoothed sunspot numbers as Cycle 21 sinks to a very low point. They are: *1983 — April 79.7; May 100.2; June 90.6; July 82.1; August 71.9; September 50.9; October 55.2; November 33.2; December — not listed. 1984: January 52; February 51; March 49; April 47; May 46* . . . It may well be that the lowest point was reached in December which on the eleven year cycle would be about correct.

OTHER SIX METRE NEWS

One would have to say the March/April 1984 period was full of unexpected surprises on the six metre band. The incredibly consistent contacts between VK and JA would surely never have been anticipated. There were very few days when JAs were not available at some time or other, either on 50 or 52 MHz depending where you live, but certainly in the southern areas the 50 MHz end of the band alerted operators of impending contacts through more vigilance on that part of the band.

A few random reports indicate such activities as VK1ZQS working ninety JAs on 29/3. VK3XEX (Maurie) worked sixty nine JAs on 24/3 with the band open for more than eight hours. Bob VK5ZRO working 100 JAs on one occasion and plenty of twenty and thirty JA contacts on others. Although I cannot substantiate it, I did hear of a VK2 working 160 JAs at one sitting!! Even VK5LP got into the act working JA1, 2, 3, 4, 5, 7 and 8 in one sitting on 1/4 for some twenty contacts!

But the long distance contacts were not only to Japan. In the VK2 and VK4 areas in particular it seems H44, FK8, YJ8 and KH6 were not uncommon. VK5 shared in some of these, with H44 rare, ZL quite common, and KH6 on several occasions. KH6FQ, KH6JIW and KH6IAA were all featured, with perhaps the best being on 31/3 when KH6IAA was worked here at 5x9 at 0243.

There will be plenty of other interesting contacts throughout the country but as they are unreported they are not listed. However, the contacts are quite interesting in several ways. Firstly, the JA contacts were not only during the day but also at night, and continuing through to 1300 and later in VK5! The contacts to KH6 were around mid-day local mostly, although as late as 0600 at times.

That so many long distance contacts occurred gives some food for thought and I suppose conjecture! March/April has consistently been probably the best time for F2 and TEP contacts right through Cycle 21 so the time of the year would not surprise many. But the sheer consistency would surprise most. We can only guess but it may have been a set of exceptional circumstances which brought about the contacts, but for the circumstances to exist for the best part of two months is not so easy to accept. Personally, I believe that there is today a much greater awareness of the capabilities of six metres that operators are paying the band more attention than in the past. The fact that VK now has some access to 50 MHz has meant more operators are monitoring that section if not actually working stations there. And overseas operators have finally become aware that a large country to their south does have six metre operators and look this way more often, and are using the Channel 0 TV stations for beacons!

Because of Cycle 21 there is so much more 6 metre equipment around these days, and most of it being commercial transceivers, generally it is in good order and capable of being put on the air at a moment's notice. When the small Japanese transceivers are backed up by reasonable linear amplifiers it all adds up to the possibility of contacts being made. It is quite likely similar conditions have existed in the past, but we were unaware of it, and with more people gradually filling up the ranks of the retired, there are more operators around who can spend extra time on the band, and by using the scanning mode of their transceivers can be doing other things in the shack but still be tuning the band. It all adds up to more contacts, and I believe this situation will continue and even improve. If that should prove to be correct we can be sure of an exciting time on six metres in the future, particularly if the Channel 0 stations do finally vacate the band! On the other hand of course, we will lose them to our overseas neighbours as beacons!

VHF/UHF IN THE UK

Steve VK5AIM has made available news from "The Shortwave Magazine" which for February 1984 includes confirmation of an earlier note that the Department of Trade and Industry has agreed to the granting of more 50 MHz permits up to a total of 100 stations, with the required questionaires to be returned by 31st March, 1984. It is good to see the G stations being allowed to participate on the great six metre band but at 100 permits there must still be many disappointed operators.

Also of interest in the publication is the annual VHF/UHF Tables for the various bands, and herewith are some excerpts. The four metres table shows G3UVR heading the list with sixty one UK counties and seven countries. On two metres G3UVR again heads the list with ninety counties and twenty six countries, but G6ECM has worked thirty three countries and GW4TTU twenty nine countries. Thirty three countries on two metres is a staggering number and it is probably unlikely any other area of the world is likely to exceed that number, since there are a lot of countries in Europe. Maybe the Central Americas/Carribean area might come close. On 70 cm G8TFI has sixty nine counties and twenty one countries and heads the list in both areas. Twenty one countries on 70 cm is no mean effort either. On 23 cm G8TFI again heads the list with forty six counties and sixteen countries.

Looking down the various lists one can only conclude there are some very keen operators in the UK and interest is no doubt kept alive by the fact that it is possible to have contacts at least on 2 metres at any time of the day or night no matter where you live.

SIX AND TWO METRES STANDINGS

As you will recall, the February 1984 issue carried the first VK standings for six metres, and as promised it is proposed to update this in the August issue. Anyone wishing to update their present listing or have their name added to the list, then details should be on my desk no later than 15th June. A minimum of five confirmed countries is required for you to be listed.

Details required are: Your own callsign, date of contact, time in UTC, callsign of station worked, country, mode, signal reports both ways, QSL received yes/no. If QSO was split frequency then frequency of each party required eg 52/50, 52/28 etc.

There have been some reports of difficult contacts being finally confirmed on 28 MHz. This is totally unfair and unethical. If you cannot complete all the relevant information on 6 metres then that's too bad. I will investigate any worthwhile reports of such information being passed and take appropriate action.

On the subject of two metre standings, as pointed out in February this is a difficult area in view of our isolation, but in view of some contacts having recently been made with overseas stations, perhaps we are not so totally isolated!

Accordingly, lists are sought from interested operators under the following headings: Your own callsign, date of contact, time in UTC, callsign of station worked, country worked other than Australia, mode, signal reports both ways, QSL received yes/no. Crossband contacts not to be counted. In addition one contact per each Australian State VK1 to 8

inclusive eg If you have worked all the Australian States and New Zealand this will count as nine contacts.

Information for the two metre standings is required no later than 15th July for inclusion in the September 1984 issue.

If the two metre standings gets off the ground floor successfully, then we could try a 70 cm standings at a later date. More on this later.

ROSS HULL MEMORIAL CONTEST

From time to time I receive complaints about the scoring points for this contest. About the only one I know who seems prepared to do more and take up the matter with the Federal Contest Manager is Wally VK6KZ who has tried to come up with a fairer set of points than seems to have been the case in the past. If you really do have definite ideas for an IMPROVEMENT to the Ross Hull Contest then please send them to the Contest Manager now, to give him time to consider what you are on about. It is too late to start complaining when the rules come out in November.

Nevertheless, it is very difficult to have a set of rules and scores which will suit everybody in a VHF Contest. There are various areas of dense population with a similar high level of VHF activity, or potential activity might be better. Then you have the geographical differences between Victoria and Western Australia, the relative isolation of VK8 as well. Victoria sits in the box seat when it comes to working interstate eg VK7, and this can be done on five or more VHF/UHF bands. Yet at the same time penalties should not be exacted upon those people who have the ability and desire to operate on many bands; that can only be done after much time and expense building equipment, especially for the very high bands. At the same time we don't want to stop the operator with one or two bands from participating, and being turned off from submitting a score sheet simply because he knows he has no chance of competing with the multi-band station. There seems a good reason for having separate sections suiting the various participants.

Now, if you can come up with some constructive advice on how these various parameters can be met, then I am sure both the Contest Manager and I would be very pleased to hear from you. I will give publicity through these columns to any worthwhile suggestions which could be discussed at a country-wide level and hopefully get some feedback which could be passed on as necessary. Think about it now!

VHF NOISE SNOOPER

From "The Propogator" comes a reprinted article from "73" magazine under the name of Jim Feeney WA6CLZ, and as it touches on a subject annoying to most of us I thought readers might be interested.

"VHF NOISE SNOOPER — track down annoying pulses.

"Are you quite sure that nothing can be done about that noise level at your QTH? Just one of the problems with noise is its frequency content. I had a noise which affected the FM broadcast band and even wiped out 6 m, but only contributed ½ an S unit on 75 m. So I was forced to look for some special device, and found it sitting right in front of me. Here is a new approach to noise tracing, using a piece of equipment you may have already.

"Simply cut or unsolder one end of either of the FM detector diodes in an AM/FM portable, and you have an ultra portable, ultra sensitive noise detector. You can usually spot the diodes sitting side by side between the last IF cans and the audio transformers.

"In use, my detector works amazingly well. First, find a blank spot between stations and start out. I tried using a bicycle, but tyre noise drowned out the noise I was trying to locate, so I walk now. As you walk, the noise will go in and out like airplane flutter, slowing down and getting steady when you are very near. Then you can point the end of the whip at the noise source for a null. One noise was found so accurately that the vertical position on the pole was pinpointed for the power company linesman.

"Of course there are other problems. When you rid the neighbourhood of all those power leaks, you really notice the cars!"

The VK5LP establishment has used this method in the past and it does work. I use a portable which covers AM, shortwave bands, and all the TV channels sound frequencies. This allows me to keep tuning higher in frequency to really pinpoint the offending pole. If you have real noise problems it's worth a try, and providing you can accurately pinpoint the trouble the electricity people will co-operate.

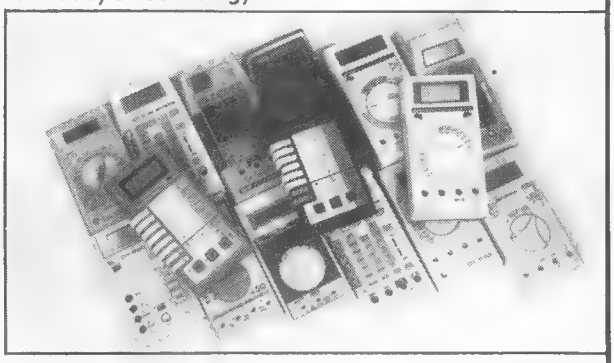
On that happy note we will conclude with the thought for the month: "Don't go around with a chip on your shoulder. People may think it came off your head!" 73. The Voice in the Hills.

AR

eti ELECTRONICS TODAY INTERNATIONAL

AUSTRALIA'S DYNAMIC ELECTRONICS MONTHLY!

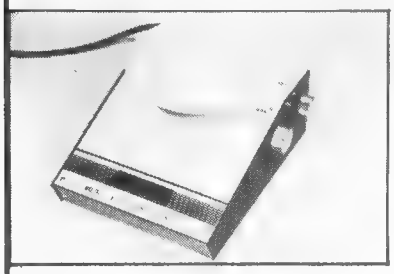
Up to date on today's technology.



June 1984 features:

THE INS AND OUTS OF MULTIMETERS

The Multimeter is probably the most important single piece of equipment anyone concerned with electronics will buy. But with the digital revolution in Multimeters, the purchaser is faced with a bewildering variety of fancy shapes, sizes and range selection schemes. The June issue of ETI looks at the latest in handheld Digital Multimeters, how they work, and the best way to go about choosing one.



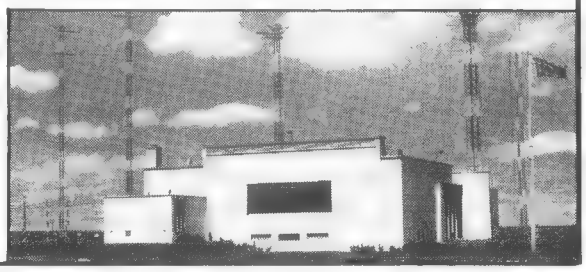
ELECTRONIC SCALES TO BUILD

For the avid scientific experimenter, general hobbyist, budding chemist, or nouvelle chef, a good set of digital readout scales is like having a third arm — once you've had it a while, you don't know how you ever did without it! This project employs a unique strain guage bridge technique, printed directly on the pc board. It features four-digit readout and three ranges of 200 gram, 2kg and 5kg. No special mechanical contrivances or impossible-to-get parts used.

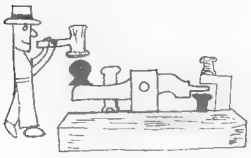
eti

MAPLE LEAF BRAG

Canada's overseas 'voice', the shortwave broadcaster Radio Canada International, recently upgraded its transmitting facilities and now boasts five 250 kilowatt transmitters. Arthur Cushen tells the story and gives details on their latest schedules for this area.



eti $2.50 AT YOUR NEWSAGENT



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

"In the latter half of 1921 the giant Spark, storming unmolested across the countryside, met a stripling in his path. Each instinctively recognised the other as an enemy. The stripling stepped aside, but a year later they were to meet again. This time there was no stepping aside. David met Goliath, and the giant fell . . . The King is dead — Long live the King! Hail CW!"

That humorous allegory of the progression from Spark to CW is from the introduction to the Fourth Edition of the ARRL Radio Amateur's Handbook (1928). Amateur radio was very young in those days — its history is dealt with quite thoroughly in the first ten pages of the handbook.

As one might expect, there is a wealth of interesting material in this slim blue volume which, priced at One Dollar, must have been a fairly expensive tool in 1928. The ads in the back of the book are for such marvels as "THE NEW AERO COILS," "AIR-KING PRODUCTS," "KENOTRON RECTIFYING TUBES," and something called the "UNI-RECTRON POWER AMPLIFIER."

The book has been lent to me by my good friend, and fellow member of the Adelaide Hills Amateur Radio Society, Jack Trembath, VK5JT, and I hope to be able to present some more excerpts in the near future, but for now we'll turn our attention to the origins of CW.

"Continuous Wave Transmission for the amateur was an outgrowth of his war experience (WW1). While serving in the Army and Navy he had seen five-watt tubes covering very respectable distances. Interesting stuff, this CW. Something to think about.

"An undercurrent of CW experimentation began with the resumption of post-war transmission in 1919. It was confined to a small group for one very excellent reason: power tubes were not yet commercially available. Only a favoured few were in a position to acquire government war-time tubes. The acquiring, it may be said, was done by devious methods.

"Those experimenters made some highly interesting discoveries. CW travelled incredibly long distances with low power. It was sharp. It did not create vicious local interference. It cut through static.

"Such decided advantages could not be overlooked. When power tubes became available commercially in 1921, the ARRL started a campaign advocating the adoption of CW for amateur use. Conversion, however, proved a slow process. The rank and file remained loyal to the spark with its brute-force appeal, and refused to be stampeded on the slight evidence of the slide-rule minority. Argument had no effect. "Long live spark" became their watch-word . . .

"In December, 1921, thirty American amateur stations were heard in Europe. It electrified the amateur world, but it was not an accident. All but three of those thirty stations were logged with American amateur receiving equipment operated by an American amateur who had been sent to England at the expense of the League solely for that purpose . . . When he dismantled his apparatus at the conclusion of the tests it had been demonstrated for all time that amateur signals on 200 metres (!) could span the Atlantic.

"Something else had been accomplished, too. More than two-thirds of the signals that got across were from CW stations. Here was an argument that could not be laughed off. The spark contingent thought it over, sighed resignedly, and began poring through catalogues of CW equipment. From that time on, the future of tube transmission was assured."

Here endeth the reading from scripture.

CW gave an enormous boost to radio communication in all its aspects from military to news services — and oddly enough changed the basic nature of the ARRL. The American Radio Relay League was founded in 1914 with the issuance of the first call book, containing the details of some 300 members of the League. Its stated object was to develop relay routes all over the country so that an amateur in one part could send a message to another hundreds of miles away. Even coast-to-coast communication might be possible!

Of course, with the introduction of CW and the granting of the higher bands (80, 40, and 20 metres), the requirement to relay messages became less and less. In fact, the 1928 handbook lists relaying of messages as one of the things the ARRL was "interested in," while its role as "spokesman for amateur radio" had occupied the top position.

Over fifty years later we are hearing people say that SSB and FM will take over from CW the way CW did from spark. CW band allocations are seriously threatened — not so much by alterations to the "gentleman's agreement" as the increasing acceptance of the totally erroneous premise that CW *should not be used outside the exclusive segments.* There is increasing pressure for code-free licensing — as if it didn't already exist for VHF and above, not to mention CB. This one flies in the face of international agreements, but is perennially raised by people who are too lazy to learn Morse, or afraid the amateur ranks are shrinking and think the answer is to let the CB'ers in.

But the future of CW is undoubtedly assured, so long as amateur radio is amateur radio, because it cannot be denied that it is simple, effective, and represents conservative frequency management. Until someone comes up with a mode that is "sharper", less likely to cause interference, and better able to cut through static, CW will always have its well-deserved place.

73 till next time. **AR**

ACTIVE OLD TIMER

Recently Jim VK4HZ drove from his home in Gympie, Qld to Victoria with only his Fox Terrier dog and amateur radio for company.

You may feel "so what", many people do this every year but — Jim is eighty years old.

John VK2AMV from Forbes NSW talked to Jim on 2 m from Dubbo and as Jim was passing through Forbes, John suggested an eyeball QSO, during which time the two J's discovered they first worked on 7th September 1949 and Jim was John's 109 QSO.

AR

Jim VK4HZ (left) and John VK2AMV check through John's Vintage Log Book.

Photograph by John Meagher VK2AMV.

QSP

DANGEROUS PCBs??

PCB does not stand for printed circuit board in this case. It means polychlorinated biphenyl, a potentially hazardous chemical which can be given off in a vapour form from overheated dummy loads which contain transformer oil.

If you have a dummy load containing transformer oil manufactured between 1920 and the late 1970s it may pay you to read the article in Ham Radio, December 1983.

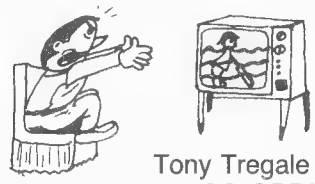
From Break-In, March 1984
AR

REMEMBER

The world is full of willing people. Some willing to work, the rest willing to let them . . .
(Robert Frost) *from QRM — Vol 1, No 9*
AR

This month's EMC column features a special article which is reprinted, with permission, from POPULAR SCIENCE magazine — December 1983.

NATIONAL EMC ADVISORY SERVICE



Tony Tregale VK3QQ
FEDERAL EMC CO-ORDINATOR
38 Wattle Drive, Watsonia, Vic. 3087

ELECTROMAGNETIC POLLUTION — ARE THEY ZAPPING YOU?

Electromagnetic fields from overhead power lines and signals from broadcast and microwave transmitters bathe us in a sea of nonionising radiation. Although no one suggests that this electromagnetic smog can cause the cell-changing physical damage that radioactivity and X-rays can, some experts believe it might have other, as yet unknown, biological effects. Other experts say no, and the studies done so far offer contradictory evidence. The author spoke to researchers on both sides to put the issue into perspective.

By ROBERT GANNON

In the United States today, there are 1000 television stations, 8000 radio stations, and more than 40 million citizen-band transmitters. Information is relayed coast to coast by 250 000 microwave dishes, and 40 million other microwave devices are used in the plastics, food, and building-materials industries. Overhead, almost 300 000 miles of high-voltage power lines crisscross the country. These conduits of information and energy are the central nervous system of modern society.

They are also the sources of an ever-thickening fog of radio-frequency and microwave radiation. *"If 100 years ago you were an observer out in space and could see radio frequencies, Earth would have looked pretty quiet, pretty dark,"* says Allan Frey, technical director of Randomline, Inc, a Pennsylvania research and consulting firm. *"But look at it today, and you'll see it glowing like crazy."*

And therein lies a controversy: Is the electromagnetic fog that surrounds us harmless, as the military and the electricity and communications industries maintain? Or, as some public-health officials and environmentalists fear, is it an insidious poison with long-term biological effects?

The question of microwave and power-line safety has been debated before, but never with so much intensity as in the last couple of years: *"Exposure of the public to radiation from high-voltage power lines is a form of involuntary human experimentation and is therefore abhorrent in our society,"* says Robert O Becker, former research professor at New York's Upstate Medical Center. John Villforth of the Food and Drug Administration's US Bureau of Radiological health counters: *"One of the beautiful things about radiation is that anyone who is paranoid can blame his problems on it."*

In between these opinions is a vast and contradictory body of research data. Recently, I studied the scientific literature and talked with dozens of researchers, physicians, and government officials. Sifting through the maze of data, here is what I found.

Concern over electromagnetic fog centres on two areas: radiation from broadcast transmitters and relay stations, and electric fields emanating from high-voltage power lines. Both are categorised as *nonionising* radiation, in contrast to cosmic, gamma, and X-rays, which are *ionising* radiation. Those latter types of radiation reside at the high-frequency, short-wavelength end of the electromagnetic spectrum, and they have sufficient energy to damage living tissue by smashing into its atomic structure and ionising it by dislodging electrons. Nonionising radiation lacks the energy to cause such direct damage. Any damage results either from direct heating of tissue or from more-subtle, still-unknown mechanisms.

The microwave region of the spectrum runs from about 300 billion to 300 million Hz, and radio frequencies extend downward from there to 100 Hz. The intensity of both types of radiation is often measured in units of microwatts per square centimetre ($\mu W/cm^2$).

MICROWAVE DANGERS?

At stake in the battle over nonionising radiation are safety standards. At present, the only limit for microwave and radio-frequency exposure is an advisory ceiling based on thermal effects — heating. That is what takes place in a microwave oven and obviously is damaging. But is there any damage *below* the level that causes heating? Standards in force today are based on work done in the late 1950s, mainly to find out whether military personnel were in danger. Researchers at that time subjected rabbits' eyes to high levels of microwaves. They found that a dose of 100 000 $\mu W/cm^2$ for one hour would heat the eye fluid to about 110 degrees F, forming cataracts about a week later. In another experiment, of 200 male mice irradiated daily for a short period by an Air Force radar transmitter, 40 percent suffered degeneration of the testes, and 35 percent developed blood-cell cancers. As a result, most industries used one-tenth the experimental level — 10,000 $\mu W/cm^2$ — as the maximum exposure for workers.

The situation developed differently in the Soviet Union. There, researchers began reporting a litany of symptoms developed by radar workers: headache, fatigue, dizziness, depression, loss of memory, and more. So at about the same time that authorities in the US set their guideline, the USSR — not a country universally known for its concern for individual citizens — established a worker safety standard 1000 times lower. For the general public, the standard is 10 000 times lower. Other nations also have tough standards: Poland, 200 $\mu W/cm^2$; Canada and Sweden, 1000; Czechoslovakia, 25. Says Leonard Solon, New York City's Director of the Bureau for Radiation Control: *"The failure (in this country) to evolve environmental standards is deplorable."*

On the other hand, Don Justesen, speaking on behalf of the prestigious Institute of Electrical and Electronics Engineers, points out that *"The Soviet standard is based on a no-effects philosophy: the US limit, on the concept of a no-damage threshold"*. And he adds, *"If the Russian hygienists took the same attitude toward infrared radiation, all sources of sub-millimetre warmth, including the sun, would be outlawed."*

TEST, COUNTER-TEST

Who is right? Is the US standard safe, and can we be sure that there are no nonthermal effects at levels too low to cause heating? What about, for example, low-level microwave radiation — the kind you might receive standing outside a TV station? The answer is not clear. At the time of the rabbit studies, a few isolated studies appeared showing unexpected effects from much lower exposure levels, and they have continued to this day.

For example, University of Texas physiologist Robert Lebovitz exposed rats to low levels of microwaves and found that they were less active during trained "exploration" periods. Allan Frey, who 20 years ago published a study on the ability of humans to *hear* some microwave frequencies, found that male rats accustomed to fighting when their tails were pinched behaved passively after being irradiated with pulsed waves in the UHF television band.

Polish studies showing changes in the human immune system from low-level micro-

wave exposure have been supported by recent American papers reporting effects on both white and red blood cells. On the other hand, Solomon Michaelson, radiation expert at the University of Rochester School of Medicine and Dentistry, and two colleagues published a strictly controlled study showing that cultures of human white blood cells exposed to microwaves retained their ability to combat a common flu virus.

Many of the adverse effects are so subtle that it is difficult to prove that they resulted from radiation exposure, and it is also questionable whether results obtained for one species under specific experimental conditions can be extrapolated to humans. Furthermore, showing that electromagnetic fields or waves can cause biological changes does not prove that the changes are harmful. As Janet Healer of the National Telecommunications and Information Administration points out, *"Effects are not always hazards."*

Thus, although much experimental work has been done over the years, the situation is unchanged: Some evidence seems to indicate that low-level microwave radiation *affects* living beings, but there is no conclusive evidence that it does any damage.

Nevertheless, the consensus is shifting toward tougher standards in the US. The continuing research into the biological effects of low-level nonionising radiation is far from conclusive, but the American National Standards Institute recently recommended a microwave standard of 1000 $\mu W/cm^2$ — one-tenth the present guideline. And the Environmental Protection Agency, after making a complete review of health-effects studies, is reportedly considering a limit of 200 $\mu W/cm^2$.

But despite a growing tendency to establish tougher standards, it remains that there is no agreement that nonionising radiation affects the body — unless, of course, it is of a high enough level to cause heating. *"There is no evidence of hazard to humans other than superficial burning,"* says Rochester's Michaelson.

Michaelson and others point out that many of the biological changes that have been noted — increase in blood cells or change in nuclear structure of bone marrow — are associated by a rise in body temperature and are reversible after heating ends. Unlike those with ionising radiation, the effects are not cumulative.

But other scientists contend that there are other effects unrelated to heating that are not reversible. The range of *possible* effects is so enormous, they say, that there may be icebergs lying below the protruding tips. And so the controversy, unsupported by hard proof on either side, goes on.

The dispute over whether 60-Hz electric fields (the kind you're exposed to near high-voltage transmission lines) are dangerous is even more nebulous. With power lines, the concern is over the strength of the electric fields — measures in volts per metre (V/m) — that are generated. The centre of an average kitchen may have a 60-Hz field of 1-3 V/m. The maximum field you would expect to encounter under the most powerful transmission lines now in use — those carrying 765,000 volts — is 10,000 V/m. At that intensity, the hairs on the back of your neck will start to tingle, a fluorescent lamp held in your hand will glow, and if you reach upward, pointing, your finger tip will feel as though it is being lightly shocked.

EXTRA POINTS

Across campus, over an eight-year period, Graves exposed thousands of chickens and hundreds of rodents to intense electric fields of up to 100 000 V/m. He looked for altered brain-wave activity, hormone changes, and electrophysiological functions — and found none. He tested pigeons to see whether they would lose their homing abilities: they didn't.

The only reaction, he says was an *awareness. "They probably felt feather rotation — feathers do that in an electric field — or perhaps they have sensory receptors that we as yet don't understand."*

Graves later subjected mice to 40 000- and 80 000-V/m fields and analysed their blood He says, *"They exhibited a rapid but moderate elevation in corticosterone — the fight-or-flight chemical — which quickly returned to baseline. Human beings have about the same reaction when we see a touchdown pass."*

Grave's conclusion: *"Animals subjected to twice or more the maximum field strength of existing power lines do, in fact, detect and respond to electric fields. But they habituate to those events in a matter of minutes."*

Marino, Graves, and McKee work with live test subjects. Another type of research is epidemiological statistical, population-centred studies, in which, for instance, a thousand linemen are studied closely for a decade or so. Very few such studies have been performed, but the data collected are indeed strange.

Take, for example, a study completed by researchers Nancy Wertheimer and Ed Leeper of the University of Colorado Medical Center They found that children living near large electrical transformers and substations were nearly twice as likely to die from nervous-system tumors and leukemia as those living far from high-power sources. (Some follow-up studies have confirmed this; others have shown no correlation.)

Or consider research conducted in Shropshire County, England. A group of specialists in nonionising radiation checked out nearly 600 suicides and discovered that a surprisingly high percentage of them lived in areas with high power-line-radiation levels.

Happenstance? Maybe, but until additional studies verify or invalidate the findings, who knows?

HIDDEN MECHANISM?

Certainly nobody can offer a complete explanation of how nonionising radiation either microwave energy or 60-Hz field can cause harmful effects. Many scientists won't even speculate, but surgeon Becker is one who will. All living beings, he hypothesises, need some sort of data-transmission system (a nervous system) to send command signals from a central point. Becker thinks that this model might be incomplete, that each *cell* also contains its own electrochemical-transmission system and that it can react to stimuli of a chemical or electric nature independent from the central system. *"It seems evident that solid-state electrical properties are present,"* he says.

A somewhat similar view is taken by neurophysiologist W Ross Adey, research director at the VA Medical Center in Loma Linda, Calif. He, too, points to the electrochemical pathways by which living cells communicate with each other. *"Biological effects are being observed from electric fields only one-millionth as strong as those formerly considered threshold levels,"* he says. Adey speculates that receptor sites in enzyme molecules might somehow be changed by weak, nonionising radiation. If so, the possibilities are quite far-reaching; all living processes are governed by enzymes.

But Arthur Guy of the University of Washington offers a much simpler guess. *"If someone is standing near (power) lines and happens to be insulated from the ground, he will acquire a charge from the electric field. Grounding will then produce a shock, and the shocks cause stress. Something like that might be involved."*

In any case, nearly all radiation scientists agree that if there is a hidden mechanism, then nobody understands it, and research on the problem should accelerate.

TRADING CHARGES

In fact, a great deal of research has been done. Yet despite thousands of recent scientific papers that have been published both in the US and abroad about the biological effects of nonionizing radiation, there seems to be less agreement than ever.

Researchers who favour tighter controls are critical of the latest American studies. Not enough, say some; not directed toward the right effort, claim others. *"The money that has been available,"* says Marino of LSU, *"has produced areas of research that are mostly insignificant."*

Adds another researcher, carefully refraining from drawing a conclusion: *"Look at where the research money comes from — from the Air Force and the Navy, from microwave-equipment makers, from the electrical-power industry."*

Scientists in the other camp discount most of the Soviet research. The University of Rochester's Michaelson surveyed hundreds of Soviet scientific papers and concluded that, in general, the research suffers from inadequate technical facilities, poor energy-measurement skills, or insufficient controls. They also point out that some widely quoted American studies that found hazards were based on only a few cases and that many of the experiments that seem to be solid remain unconfirmed by follow-up studies.

And so it stands. Partisans of the two sides harden their positions, trading charges of cover-ups, conspiracy, and bad science. *"People have locked themselves into positions from which they find it impossible to flex,"* says biophysicist Frey.

It is time, says a growing group of authorities, that those positions be flexed, that the right kind of research be started, and that we stop guessing about the long-term effects of nonionizing radiation and finish finding the answers.

AR

DID YOU KNOW????

In 1950, 1 000 000 gallons of water every day were required to cool the twenty 100 000 watt tubes in the largest broadcasting station in the world.

from QRM — Vol 1, No 9
AR

AMSAT AUSTRALIA

Colin Hurst VK5HI
8 Arndell Road, Salisbury Park, SA 5109

NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR
INFORMATION NETS
AMSAT AUSTRALIA
Control: VK5AGR
Amateur Checkin. 0945 UTC Sunday
Bulletin Commences: 1000 UTC
Winter: 3.680 MHz Summer: 7.064 MHz
AMSAT PACIFIC
Control JA1ANG
1100 UTC Sunday 14 305 MHz
AMSAT SW PACIFIC
Control. W6CG
2200 UTC Saturday 28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT AUSTRALIA net This information is also included in some WIA Divisional Broadcasts

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB and the UoSAT/OSCAR 9 Bulletin board This month news has been extremely scant

OSCAR-11 STATUS

The latest news on OSCAR-11 was copied from UoSAT Bulletin-70 13th April 1984

. . . *"The following was received from G3YJO while listening for OSCAR-11 the weekend before last:*

'I have spent the last few days up here at Jodrell Bank Radio Telescope on the eighty-five foot antenna with a crossed-dipole feed on 145 MHz listening for anything emanating from UoSAT-2, both within a narrow 2.5 kHz bandwidth and +/- 100 kHz wideband. The receiver and antenna system have been checked using UoSAT-1, the sun and Cassiopia and appear to be performing well. We have got probably the best UoSAT-1 data we are ever likely to see! The UoSAT-1 signal was peaking +75 dB above the minimum discernable signal level here, so I feel that we should be able to hear something if UoSAT-2 is radiating anything on the nominal frequency. The wideband signal performance is about 20 to 30 dB worse. We also tracked OSCAR-10 and received good signals from out at 42 000 km with the 145.810 MHz beacon peaking at +55 dB above noise. The passband noise was also detectable at some 10-15 dB above the RX noise. Some good SSB signals were also copied. We have tracked UoSAT-2 last Thursday evening and Friday morning passes without anything detected at all that can be relied on, there were two bursts of carrier on the noise level, each of about ten seconds duration, but these could not be identified positively and were most probably from other amateur activities.'

After the 2 m beacon reception tests, we are now actively considering how best to receive signals from the local oscillators of the three command receivers. These are powered separately directly from the batteries and the signals should be receivable using a large ground station. OSCAR-9 can be used for calibration but unfortunately the facilities at Jodrell Bank were not suitable. Apologies are due to radio amateurs in the south of England for the recent persistent commands being generated at the University of Surrey. Software to continually locate the sun-synchronous orbital plane of OSCAR-11 has been written and is being used to eliminate possible errors in the orbital data." . . .

At this juncture we can but patiently await the result of the continued rethink on the fate of OSCAR-11.

EQUIPMENT TUTORIAL

In a recent conversation the following question was asked of me, *"As I have a pretty normal setup for 2 and 70 where can I best improve my station performance for OSCAR-10?"*

I have no doubt that this is a question most often asked and in view of the fact that news is down this month I will use my column space to reiterate my comments, with one exception and that is to allocate a priority to them should the question be expanded to include "at minimal cost". I may add that the priority listing is a concensus opinion of a group of VK5's who shall remain nameless.

Based on the assumption that the station in question consists of multimode transceivers for 2 and 70 and associated antennae for terrestial working the listing is:—

1. *An elevation rotator.*
2. *A 2 metre pre-amplifier.*
3. *Low loss feedlines.*
4. *A circularly polarised antenna for 2 metres.*
5. *A circularly polarised antenna for 70 cms.*
6. *Re-think your performance to date.*
7. *Think again.*
8. *A 70 cm linear amplifier.*

Readers may beg to differ, however I shall now attempt to justify the group's reasons for allocating the priorities as they did. The prime justification was to achieve the best performance per dollar spent.

Elevation Rotator

OSCAR-10 in the main is well elevated above the horizon and to make the most of the continued hours of operation available, elevation of the antennae is most desirable. Therefore the purchase of an elevation rotator is an excellent investment. A compromise of course would be to manually elevate the antennae however it does pay to get the antennae clear to ensure optimum performance.

Two Metre Preamplifier

Irrespective of what make or type of transceiver you have it DOES NEED a preamplifier for optimum performance on OSCAR-10. By all means you will hear signals, however once you have heard just what difference is achievable even the most skeptical of skeptics about preamplifiers will be convinced. What type of pre-amplifier will of course be restricted to what price you wish to pay. Logically the highly priced GaAs-FET preamps will provide the best performance however there are excellent bi-polar preamps at more amenable prices, that are well worth consideration.

The choice of a mast-head preamp or an in the shack preamp is left as an individual choice. Both have advantages and disadvantages. Mast head amps are more sophisticated and subsequently more costly.

Low Loss Feedlines

A most often overlooked item, but well worth consideration for both receive and transmit. On receive the use of a mast head preamp may well suffice in lieu of low loss cable. On the transmit side the purchase of a suitable cable can be more cost effective than a linear amplifier. Analyse your own situation, how many watts do you get to the antenna terminals?

Circularly Polarised Antennae

As OSCAR-10 exhibits right-circular polarisation a 3 dB increase in both received and transmitted signals is practicable if circularly polarised antennae are used by the ground station. Also QSB due to Faraday rotation and like polarisation shifts is minimised. However from experience the next best compromise to circular polarisation is vertically polarised antennae. Tests have shown that at apogee vertically polarised signals are of similar magnitude to RH Circular however the QSB is 6-10 dB worse. Should you introduce circularly polarised arrays the capability to switch from LH to RH and vice-versa is most desirable.

Rethink Time

At this point it is time to reflect on your station performance. If you have implemented the prior recommendations you should now have an excellent receiving setup and be receiving signals as well as anyone. That being the case how strong is your downlink signal compared to the general beacon on 145.810 MHz. If you find that your downlink is 10-12 dB above the beacon then you stand a very good chance of being labelled an "alligator", a derogatory expression to indicate that you are not doing the right thing by other communicators in the passband. The accepted norm is that if your downlink signal is of comparable magnitude to that of the beacon then you do not require to increase your uplink power.

Conclusion

From experience to date it is apparent that the biggest operating deficiency being encountered on OSCAR-10 is the inability of some operators to HEAR signals. Consequently they come to the conclusion that they have insufficient uplink power, and spend considerable time and expense to improve their uplink signal, all to no avail. Therefore it is important that all users of OSCAR-10 spend a little time and compare their downlink signal strength to that of the 145.81 MHz beacon, and then decide your next approach.

UPS AND DOWNS

Thanks once again courtesy of Bob VK3ZBB we have the latest list of satellite launches and re-entries. Bob has taken a very serious interest in recent years to other satellites as well as our own amateur satellites. He has a special interest in the Shuttle programme and was able to supply some extremely valuable

JUNE 1984 OSCAR-10 APOGEES

DATE	DAY #	ORBIT #	APOGEE UTC HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	SATELLITE CO-ORDINATES LONG DEG	BEAM HEADINGS SYDNEY AZ DEG	SYDNEY EL DEG	ADELAIDE AZ DEG	ADELAIDE EL DEG	PERTH AZ DEG	PERTH EL DEG
JUNE 1	152	727	2212:31	25	288					318	10
2	153	729	2131:36	25	279			310	0	326	15
3	154	731	2050:40	25	269	307	-1	316	6	334	20
4	155	733	2009:45	25	260	314	5	323	11	343	23
5	156	735	1928:49	25	251	321	10	331	16	353	24
6	157	737	1847.54	25	241	328	15	340	19	3	25
7	158	739	1806:58	25	232	337	19	349	21	13	24
8	159	741	1726 03	25	222	346	21	359	22	23	21
9	160	743	1645.07	25	213	356	23	9	21	31	17
10	161	745	1604:12	25	203	6	23	18	19	39	-12
11	162	747	1523:17	25	194	15	21	27	16	46	7
12	163	749	1442:21	25	184	25	18	36	12	52	1
13	164	751	1401:27	25	175	33	14	43	7		
14	165	753	1320:30	25	166	41	10	50	1		
15	166	755	1239:36	25	156	48	4				
16	167	757	1158:40	25	147	54	-2				
17	168										
18	169	762	2216:21	25	303					308	1
19	170	764	2135:27	25	294					314	7
20	171	766	2054 30	25	284			306	-3	321	13
21	172	768	2013:36	25	275			312	3	329	18
22	173	770	1932:41	25	265	310	2	319	9	338	22
23	174	772	1851 45	25	256	316	7	326	14	347	24
24	175	774	1810:50	25	246	323	13	335	18	357	25
25	176	776	1729:54	25	237	332	17	344	21	8	25
26	177	778	1648 59	25	228	340	21	353	22	18	23
27	178	780	1608 03	25	218	350	23	3	22	27	20
28	179	782	1527.08	25	209	0	23	13	21	35	16
29	180	784	1446:13	25	199	10	23	23	19	43	10
30	181	786	1405.17	25	190	20	21	31	15	49	5

SATELLITE INFORMATION FOR PERIOD 2ND FEB-28TH FEB 1984

The following satellites were Launched

NUMBER	NAME	NATION	DATE OF LAUNCH	ORBIT PERIOD MINS	INITIAL DATA APOGEE KM	INITIAL DATA PERIGEE KM	INITIAL DATA INCLN DEG	REMARKS
1984 010A	COSMOS 1535	USSR	2nd Feb	105	1029	974	83	SI TM
1984-011A	STS 41B	USA	3rd Feb	90 1	286	277	28.5	see below
1984-011B	WESTAR VI	USA	3rd Feb					Deployed
1984-011C	IRT	USA	3rd Feb					from STS-
1984-011D	PALAPA B2	Indonesia	3rd Feb					41B but none achieved their desired orbit
1984-012A			5th Feb					No detailed
1984-012C			5th Feb					information
1984-012D			5th Feb					
1984 013A	COSMOS 1536	USSR	8th Feb	97 8	679	648	82 5	SI TM
1984-014A	SOYUZ T10	USSR	8th Feb	89 4	274	226	51 6	With Cosmonauts Kizim, Solovjov and Atkov
1984-015A	OHZORA	Japan	14th Feb	96 9	865	354	74.6	Scientific Experiments
1984-016A	RADUGA	USSR	15th Feb	1440	35950		1 3	TV CS
1984-017A	COSMOS 1537	USSR	16th Feb	—	—	—	–	
1984-018A	PROGRESS 19	USSR	21st Feb	88 7	261	192	51 6	Cargo Spacecraft
1984-019A	COSMOS 1538	USSR	21st Feb	100 8	820	781	74	SI TM

KEY SI Scientific Instruments
TM Telemetry
TV — Television Systems
CS Communication Systems

84011A STS 41B, also known as STS 11, carried astronauts V Brand R Gibson, B McCandless, R McNair and R Stewart

2. Recoveries and Re-Entries

1984 004A COSMOS 1532 was recovered on 26th Feb and six other objects decayed during the review period

information on the STS9-W5LFL Amateur in Space Mission. Once again Bob, your support and contributions are invaluable.

FEEDBACK

It is extremely satisfying to receive feedback in respect to this column. I also speak for Graham VK5AGR the AMSAT-Australia co-ordinator who receives considerable mail in respect to the amateur satellite programme. It is readily apparent that a rebirth of enthusiasm in amateur satellites has materialised with the launch of OSCAR-10. Therefore any reader who has a comment or problem, Graham and I will be only too pleased to assist wherever possible.

de Colin VK5HI

AR

INTRUDER WATCH

Bill Martin, VK2EBM
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

The Intruder Watch this month takes great pleasure in welcoming two new divisional co-ordinators to its ranks. They are: Lindsay Collins, VK5GZ, 12 Park Avenue, Rosslyn Park, SA 5072, and Robin Harwood, VK7RH, 5 Helen Street, Launceston, Tas 7250. Amateurs in these two divisions can now send reports direct to the above co-ordinators. The Intruder Watch in Australia is now back to a full complement of co-ordinators, VK1 through to VK8.

VK6KVV, the Co-ordinator for the Western Australian Division, wishes to publish a change of address for any correspondence; all reports now to Bruce Hunt, VK6KVV, PO Box 590, Cannington, WA 6107.

The following DX calls are active in Intruder Watch, so if you work any of them, you may be able to compare notes: JA6EOR, JA0UMJ, JF3OUS, JF3SCA, ZL1BLJ, ZL1BYA, ZL2IC, ZL1BAD, ZL1BXW, W7JIE, K6KA.

The IARU Region 3 IW Co-ordinator, ZL1BAD, has written to the "Voice of Greece", expressing concern at their transmissions on 21.445 MHz. A similar note has gone to the USSR Minister of Posts and Telecommunications re Radio Moscow's transmissions appearing from time to time on 21.425 MHz.

The "People's Liberation Army Radio" (PLA) emanating from China, has changed his call to "Taiwan Haixa" (or — The Voice of the Channel). Pity he wouldn't change his frequency to outside the amateur bands.

I was recently looking through some lists which I maintain as a record of intruders heard, which are classified in *(1) Order of Frequency, (2) Time of Appearance, and (3) Callsigns used*, and found that the greatest number of intrusions appear on 7.010 MHz. The most popular time for intruders to appear is between 0930 and 1100 UTC. However, this may be due to the fact that a great many amateurs are in the shack around these times.

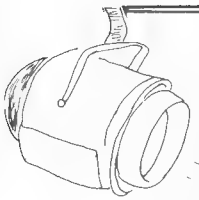
The IW net on 3.540 MHz on Thursday evenings at 1030 UTC continues to get through, in spite of the awful QRN which is to be found on the band, more often than not.

Some reports of RTTY between 14.250 and 14.350 MHz have been received, but these DO NOT QUALIFY as intruders, as the band is shared in this segment. Similarly, broadcast stations ARE NOT intruders in the segment 7.1 to 7.3 MHz. Be careful also, of the mysterious signals to be heard quite often around 14.230 MHz, as these are ATV signals, and are legitimate. A criterion in determining the legitimacy of RTTY signals is the section of the band in which they are heard. Most amateur RTTY stations *usually operate in the top end of the CW section of the bands. Intruder RTTY stations are likely to be heard anywhere, and can be an indication that they are in fact intruders. However, we can assume nothing. Don't forget that AMTOR signals are quite often present on or about 14.075 MHz, so don't assume intrusions there.*

If you want to get into intruder watch observing, use the Observers Log Sheet included in AR for April, 1984, it may be detached without damaging your magazine, and get started by reporting the USSR Naval RTTY station, "UMS", on 21.032 MHz. He will be there most of the day and is not hard to find. Then you can move to 21.115 MHz and report "F9T", the CW station, which sends blocks of three letters at either/or 0600, 0800 and 1000 UTC.

Any further information can be sought from your Divisional IW Co-ordinator, or from myself.

Please help with intruder watching. **AR**



SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

I recently came across an unidentified station broadcasting on the frequency of 6.215 MHz, which caused some puzzlement. I could hear, most of the time, the sound of a klaxon tooting in the background, just like those mounted on ambulances or fire engines. The language was Spanish and it was heard very weakly at around 1130 UTC. Nicaragua and its capital city of Managua were frequently mentioned.

However, I could not make a positive identification as the station was on a pretty crowded maritime radio-telephone channel, and was very difficult readability. Recent reports say Radio Sandino in Managua has been heard relaying the same programme from their MW outlet. This was on 6.200 MHz. there is also a clandestine operation calling itself "La Voz dell Sandino" reportedly transmitting on 6.220 MHz variable, which further complicated identifying the callsign of the station. The distinctive wailing of the sirens or klaxons in the background behind the announcers, points to Managua itself, yet the clandestine has reportedly imitated the same style. Hopefully propagation will permit me to positively identify the station in the near future

CLANDESTINES

At present, Central America seems to be where most of the clandestine broadcasting operations are being heard. Yet another troublespot, where there have been many clandestines for some time, is the Middle East. One recent logging I made was of a station on the unusual channel of 13.570 MHz in AM. The programme consisted of Arabic type music for about half an hour, then on the hour, an announcer read out a group of numbers in heavily accented English for about five minutes. The station then ceased transmitting without any identification announcements. I have not encountered this station since the single logging on the 18th March from 0650 UTC till at least 0705 UTC. This could presumably be involved in the Gulf War, which has been raging between Iran and Iraq for over three years now.

There has been a reduction in clandestine activity within Africa, following the recent agreement between the Republic of South Africa and Mozambique. This brought to an end both nations supporting clandestine stations broadcasting programmes to the other. A similar agreement has been also worked out between Angola and South Africa, yet the SWAPO movement still is engaged in clandestine broadcasting to Namibia or SW Africa, but not over Angolan transmitters. Libyan backed clandestines are still reportedly operating in Northern Africa.

Some low powered outlets supporting the various Kampuchean refugee groups have been observed lately, mainly between 6.9 and 7.5 MHz. Programmes are said to be hostile to the Vietnamese troops within Kampuchea. Another station occasionally pops up within the exclusive amateur allocation on 40 metres, broadcasting on behalf of the small Malayan rebels still engaged in fighting in the Thai-Malaysian border regions. The transmitter does wander about in frequency, usually hovering about 7.060 MHz around 1200 UTC although signals are very weak with very poor modulation.

INTRUDER WATCH

And talking of intruders on to the amateur allocations, I recently was appointed IW Co-ordinator for VK7, and one interesting intruder that has come under notice lately is the Voice of Greece in Athens. This station is currently being heard on 21.445 MHz, just five KHz inside the exclusive 15 metre amateur allocation, from 0900 to 0950 daily. They are broadcasting to Australia in Greek, with a five minute news bulletin in English at the end. It is not an accidental transmission as they freely confirm their operation on 21.445 MHz.

With a sizeable Greek ethnic community in Australia, particularly in Melbourne, I can foresee problems encountered from cross-modulation from nearby amateur signals on 15 metres. I do hope that the Voice of Greece will rapidly shift back into the normal broadcasting allocations. Yet this station has been transmitting at the fringes of normal allocations reserved for international broadcasting for some years now. I guess they decided to transmit just outside the 13 metre allocation, and thought they would not have any problems or hassles from amateurs. If we don't complain, other broadcasters will be tempted to commence using the top end of 15 metres for their programmes.

SINGLE SIDEBAND

Recently, I mentioned in this column, the trend towards utilising single sideband by international broadcasting stations, following the WARC assembly in Geneva. While it could be up to twenty years or more, before it would become a reality, some stations have commenced already with experimental transmissions employing the R3E mode — SSB with reduced carrier. Radio Austria in Vienna has joined Deutsche Well, Radio Sweden International, NHK and Radio Norway currently conducting on-air experiments.

This mode is compatible with existing models of receivers, that do not possess either facilities to decode SSB or a BFO. Although encouraging reports have been received on the audio quality, I do expect that programmes will continue on the conventional double sideband or AM. Most of the SW receivers, especially in developing countries, can only receive AM signals and that is where the majority of the vast listening audience is located. Other SSB transmissions you may come across, emanating from international stations, should be classified as Utility or Feeder stations, as they primarily are for relay bases, and usually operate on frequencies assigned for Fixed Services.

HAP

There have been changes to the Handicapped Aid Programme in Australia. Some of you may have been aware that I was National Co-ordinator. Effective in mid-April, this organisation was absorbed into the Radio Enthusiasts' Club of the Blind, based in Melbourne. This change has come about because of difficulties continuing administrating HAP both on a regional and national basis. In the interest of efficiency, we have amalgamated with one of the active and enthusiastic radio groups, also working with the handicapped. I hope that this merger will encourage the handicapped to participate in electronics as a recreational activity.

Well, that is all for this month. Until next time, the best of 73.

AR

QSP

FCC CLOSES DOWN FISHERMEN

For months amateurs in western Washington complained to the FCC about commercial fishermen in Puget Sound using amateur equipment and the 2 metre band for communications.

Moving to stop the illegal operations the Engineer in Charge of the District served the fishermen with citations for unlicensed operation and criminal and civil sanctions.

In exchange for the government agreeing to drop all charges, the fishermen forfeited all of their 2 metre equipment and agreed to desist using amateur bands for the communications.

Adapted from CQ, February 1984

AR

AMATEUR RADIO

At the end of March 1983, the number of amateur radio stations was over 550,000.

Frequencies available for amateur radio use are restricted by radio regulations. Transmitting power is also restricted according to the qualifications of the radio operations. Most of the amateur radio stations can be established using radio equipment available in the general market. However, now appealing to the users are long distance voice communications using the SSB system in the 1,200 MHz band or the 2,300 MHz band, satellite communications, moon surface reflex communications and repeaters.

from Electronics in Japan '83-84

AR

AWARDS

Mike Bazely, VK6HD
FEDERAL CONTEST MANAGER
8 James Road, Kalamunda, WA 6076

Once again yours truly has been kept busy processing awards and amendments to our DXCC programme. There is no doubt that the WAVKCA award is sought after by overseas amateurs, and this can only be good for those of us who chase DX on the HF bands.

AWARDS

Awards issued and amendments made during period 16th January to 20 April are listed below.

WAVKCA AWARD

Callsign	Cert No	Callsign	Cert No
JA4BAP	1206	UB5ZAT	1225
JA5SIX	1207	UA4JBD	1226
EA8SH	1208	UI8FFF	1227
JA2EWE	1209	UB5RAF	1228
JA2NPC	1210	UB5HAF	1229
JA1DCL	1211	UK5FAV	1230
DL1TL	1212	UA6AYR	1231
JE3NWN	1213	UA6HKN	1232
JA7JND	1214	UJ8XCW	1233
CT1XKA	1215	UA0DAA	1234
JH2TQH	1216	JG3RTT	1235
JF2 GP	1217	SV1PL	1236
JA3WV	1218	JR4QZH	1237
UJ8SAD	1219	YU1PDP	1238
UA4HBW	1220	JH2GSW	1239
UK2GAB	1221	JI1DCW	1240
UA9DE	1222	C21BD	1241
UN1CC	1223	JH3IEF	1242
UK5QBE	1224		

HEARD WAVKCA AWARD

Callsign	Cert No	Name
BRS-47568	70	Sue Squibb
UQ2-037-124	71	J Abols
UA9-094 5	72	E Kumissarov
UP2-038 404	73	V Zaletsky
UA0 103-25	74	A Lkubin
UB5-073-3135	75	I Siakva
UB5-057-298	76	K Sezges
UC2 010-1	77	K Mogilew

WAS (VHF) AWARD

Callsign	Cert No
VK6OX	153

DXCC NEW MEMBERS

Phone Callsign	Cert No	Tally
VK1ZL	324	104
CW		
VK3XU	121	121
VK5AGX	122	100
VK5GZ	123	111

DXCC AMENDMENTS

Phone Callsign	Tally	Callsign	Tally
VK2AVZ	250/254	VK3CYL	245 247
VK2BQS	150	VK5GZ	130
VK2DFE	299/303	VK5LC	260/271
VK3GB	252 270	VK5OJ	272/274
VK3VQ	193 207	VK6LK	309/326
VK3YJ	240/241	VK6AJW	278 280
VK3ACD	272/287	VK9NYG	159
CW			
VK3RJ	262 291	VK6RU	264 306
VK6HD	280 295		
OPEN			
VK3VQ	204 222	VK3ACD	273 288

Judging by the number of applications from Japan for our WAVKCA award, there must be a large number of Japanese stations being worked by Australians. This being so, then perhaps you may wish to claim some of the major awards, listed below, issued by the JARL.

GENERAL RULES FOR ALL JARL AWARDS

1. A list giving relevant QSO details to be submitted together with a certification from the Federal Awards Manager that the QSLs have been sighted. In lieu of this certification all QSLs need to be sent with the award application and sufficient postage enclosed for their return.
2. The charge for each award is eight IRCs and if an airmail reply is required then the charge is ten IRCs.
3. Only QSOs with land stations count, this includes mobile operations.
4. QSOs with KA stations do not count.
5. All QSOs to have been made after 29th July 1952.
6. All QSOs to have been made from the same call area.
7. Endorsements for any band and mode are available — except ADXA — and in addition there are QRP (one watt or less) and satellite endorsements available. For ADXA endorsement is available for 1.8 and 3.5 MHz, SSTV and RTTY.
8. All correspondence to: *Japan Amateur Radio League — Award Section, 1-14-2 Sugamo, Toshima, Tokyo 170, Japan.*

ALL JAPAN DISTRICTS (AJD)

This award may be claimed for having contacted and received a QSL from an amateur station located in each of the ten call areas (1 to 0) of Japan.

WORKED ALL JAPAN PREFECTURES AWARD (WAJA)

May be claimed for having contacted and received a QSL card from an amateur station located in each of the forty seven prefectures of Japan. A list of QSL cards should be arranged in order of WAJA reference number.

JA Call Area	Prefecture No	Prefecture
8	01	Hokkaido
7	02	Aomori
7	03	Iwate
7	04	Akita
7	05	Yamagata
7	06	Miyagi
7	07	Fukushima
0	08	Niigata
0	09	Nagano
1	10	Tokyo
1	11	Kanagawa
1	12	Chiba
1	13	Saitama
1	14	Ibaraki
1	15	Tochigi
1	16	Gunma
1	17	Yamanashi
2	18	Shizuoka
2	19	Gifu
2	20	Aichi
2	21	Mie
3	22	Kyoto
3	23	Shiga
3	24	Nara
3	25	Osaka
3	26	Wakayama
3	27	Hyogo
9	28	Toyama
9	29	Fukui
9	30	Ishikawa
4	31	Okayama
4	32	Shimane
4	33	Yamaguchi
4	34	Tottori
4	35	Hiroshima
5	36	Kagawa
5	37	Tokushima
5	38	Ehime
5	39	Kochi
6	40	Fukuoka
6	41	Saga
6	42	Nagasaki
6	43	Kumamoto
6	44	Oita
6	45	Miyazaki
6	46	Kagoshima
6	47	Okinawa

JAPAN CENTURY CITIES (JCC)

May be claimed for having contacted and received a QSL card from an amateur station located in each of at least 100 different cities of Japan. JCC-200, 300, 400, 500, and 600 will be issued as separate awards. A list of QSL cards should be arranged in order of JCC reference numbers. (For information on cities, see below.)

JAPAN CENTURY GUNS (JCG)

Same rules as JCC, cities replaced by guns.

What is a Gun? — Japan has, as administrative districts, forty seven prefectures, which are divided into cities, towns and villages. The gun, not being an administrative district, is a regional congregation of towns and villages. (For information on Guns, see below.)

ASIAN DX AWARD (ADXA)

May be claimed for having contacted and received a QSL card from an amateur station located in each of at least thirty Asian countries including Japan. A list of QSL cards should be arranged in order of the listing of the Asian countries list. (For information on this list, see below.)

WORKED ALL CITIES AWARD (WACA)

May be claimed for having contacted and received a QSL card from an amateur station located in each of all the cities of Japan that are in existence on the day when the final contact claimed for the award is made. A list of QSL cards should be arranged in order of JCC reference number.

WORKED ALL GUNS AWARD (WAGA)

Same as the rules for WACA, cities replaced by guns.

Each of the above awards may be claimed by SWLs.

Note: A list of Japanese cities, guns and countries for ADXA may be obtained from

VK6HD. To get this list, send me a large self addressed stamped envelope (45 cents or 50 cents airmail) together with the address label from your AR wrapper.

IA ORANA!

From 0000UTC 14th July, 1984 until 2359UTC 21st July, the "TIURAI" will take place on the air. CORA, the Radio Club of French Polynesia will participate in this years TIURAI with an all band operating event.

The Tiurai coincides with the French Bastille Day activities. Last year, the participating stations used either their regular FO8 calls or the special TO8 prefix. Visiting amateurs use either their regular FO0 prefix, or the special TO0 prefix.

DX stations from all over the world are invited to participate and work stations in French Polynesia to qualify for a beautiful certificate. Those who received one last year can verify the multi-coloured award is a real winner. To qualify, DX stations must contact three stations in French Polynesia (FO8 or FO0) on at least two different bands. A total of three stations is the minimum, and you may contact the SAME station on different bands; ie a contact with FO8HL and FO8HI on fifteen plus a contact with FO8HL on twenty would qualify you.

To help DX stations qualify for this certificate, look for French Polynesia stations on the following "Special Tiurai 83" frequencies: 28.600, 21.300, 14.240, 14.180, 14.110, 7.090 listening on 7.090, 7.250 and 3.800 MHz.

To be valid for the certificate, contacts MUST take place only during the Tiurai '84 time period. Fee for the certificate is twelve IRCs, QSLs are NOT required for the certificate. Send complete log information (Date, Time, Frequencies, Calls, etc) to: Special Tiurai '84 Award, C/- Radio Club of French Polynesia, BP 5006, Pirae, Island of Tahiti, French Polynesia, South Pacific Ocean.

In addition to the certificate, a *beautiful* trophy will be awarded to the highest scoring station on each continent during the Tiurai '84 time period: To receive the Tiurai Trophy, a station must contact the most FO8/FO0 station during this week-long activity.

You can apply for just the certificate, and not the trophy, or you can apply for the trophy alone. There is *no* charge for the trophy!

The actual Tiurai Trophy is a beautiful Mother of Pearl Shell, carved with the winners call and date on it!

THE WORKED ALL BRITAIN AWARDS

The Worked All Britain (WAB) Group was founded in 1969 to promote a greater amateur radio interest in Britain. The Group promotes an award programme, contests and activity weekends. WAB makes regular contributions to groups like the Radio Amateur Invalid and Blind Club helping less fortunate members of the amateur radio fraternity.

The award programme is based on the Geographical and Administrative division of Britain. QSL cards are not required, only Log Entries. Special record books are available to assist in the book keeping of awards.

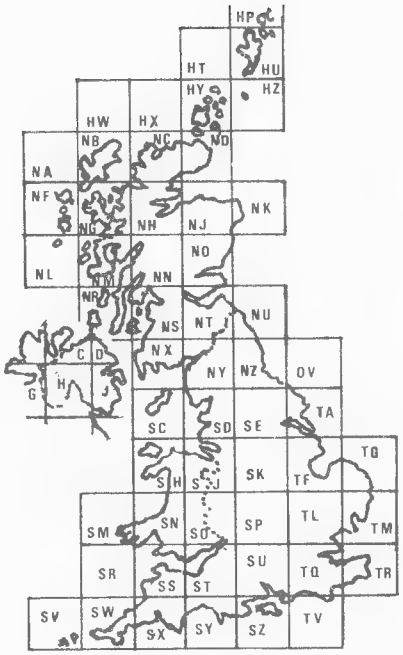
The awards are open to licensed amateurs and short wave listeners.

BASIS OF THE AWARD SYSTEM

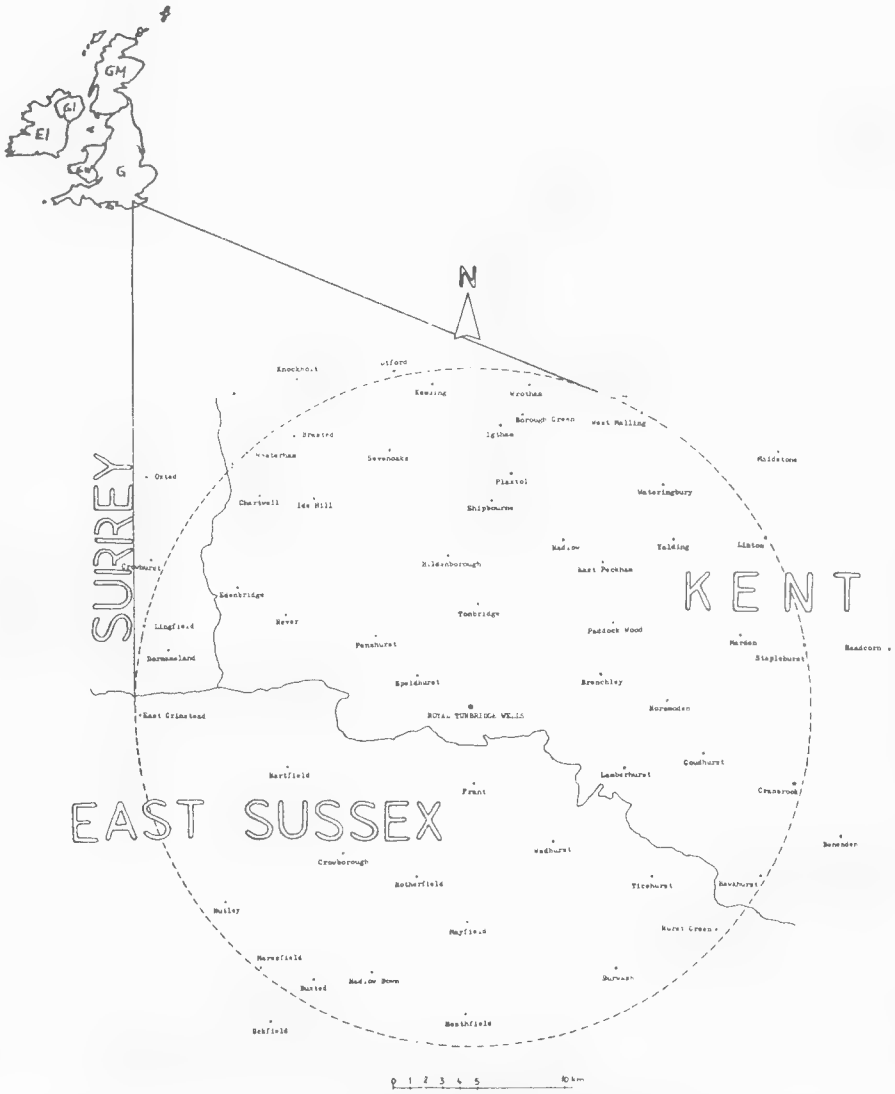
Great Britain and Northern Ireland, are divided geographically into a grid system. In Great Britain, this is referred to as the National Grid Reference (NGR), and in Northern Ireland as the Irish Grid.

Both systems divide the Country into 100 km x 100 km grid squares which are referred to as large squares. On the NGR these squares are given a two letter reference, SP, TL, HP, etc, and on the Irish Grid, a single letter reference C, D, G, H, J.

These large squares are then broken down, into 10 km x 10 km squares which are given a two number reference 00, 01,



09	19	29	39	49	59	69	79	89	99
08	18	28	38	48	58	68	78	88	98
07	17	27	37	47	57	67	77	87	97
06	16	26	36	46	56	66	76	86	96
05	15	25	35	45	55	65	75	85	95
04	14	24	34	44	54	64	74	84	94
03	13	23	33	43	53	63	73	83	93
02	12	22	32	42	52	62	72	82	92
01	11	21	31	41	51	61	71	81	91
00	10	20	30	40	50	60	70	80	90



02 . . . 99. The large square and the two number reference, then gives rise to the WAB area Ex. SP38. TL00, J04, G82, etc.

Great Britain and Northern Ireland are broken down for administration, into counties. The boundaries of these counties are drawn up arbitrarily.

The WAB area is then linked with the County Ex: SP38 West Midlands, HP61 Shetland Isles, SS98 Mid Glamorgan, C82 Antrim, there are a total of 4016 WAB Areas.

WAB AREAS AWARD

This award is given for working WAB areas. There are six classes of award: Basic, Bronze, Silver, Gold, Platinum and Sapphire.

For Stations working outside Europe 300, 500, 750, 1000, 1300 and 1600 areas must be worked.

The cost of the Basic award is $US4 including postage. The Basic award upgrades cost $US2 including postage.

WAB RECORD BOOK

To assist with the log keeping for the WAB awards, a special log book is produced. This log book costs $US10 including postage. The book lists each WAB area County by County together with the Main Towns and Villages lying in each area. Special claim sheets for a series of awards are also included.

WAB OVERSEAS INTRODUCTORY CERTIFICATE

This certificate is intended for non-European stations as an introduction to the WAB Awards. To qualify a station must be worked in twenty five different WAB areas and ten British Counties must also be worked.

WAB areas are derived from the Ordnance Survey Grid Maps whereby each 100 kilometre square is indicated by two letters (One in Northern Ireland) and is then sub-divided into 100 squares of ten kilometres numbered from 0 to 9 horizontally and vertically. For example TL 53. For WAB purposes the County is also indicated. This is because in some instances more than one County is covered by one square.

To claim for the certificate forward details of station worked, date, band, and WAB square and County. QSL cards are not required but the claim must be certified that it is a true extract from the log. The cost of the certificate is two United States Dollars.

WAB COUNTIES AWARD

There are seventy three Counties in G, GI, GM, and GW to which are added the Islands of Alderney, Guernsey, and Sark (GU), Jersey (GJ) and the Isle of Man (GD) to give a total of seventy eight. The certificate 2nd Class is awarded for working stations in fifty five Counties and the certificate 1st Class for working stations in seventy six Counties. The cost is three United States Dollars on application for either certificate, and one Dollar if up-dating from 2nd to 1st.

Claims should be forwarded to: *Mr K Draycott G3UQT, 175 Oliver Road, Kirk Hallam, Ilkeston, Derbyshire.*

WEST KENT AMATEUR RADIO SOCIETY AWARD

The Award is available to licensed amateurs and SWLs (on a "Heard" basis) for confirmation of QSOs with WKARS members and also with other amateur radio stations within 20 km radius of Royal Tunbridge Wells. This radius encompasses parts of the Counties of Kent, East Sussex and Surrey. To qualify for this Award amateurs must accumulate ten points. Points per QSO are as follows:

QSO with past or present members of WKARS — 3 points
QSO with Club Station G3WKS — 5 points
QSO with other stations within stated radius — 1 point

This award is available for all CW, PHONE or MIXED modes either all HF (1,8-30 MHz) or VHF (70 MHz up). QSOs with mobile stations (/M) do not count. QSOs with portable stations (/P) are valid.

Send list of contacts with the following data: Callsign, QTH, date, time, frequency band and class of emission used and 1 IRC.

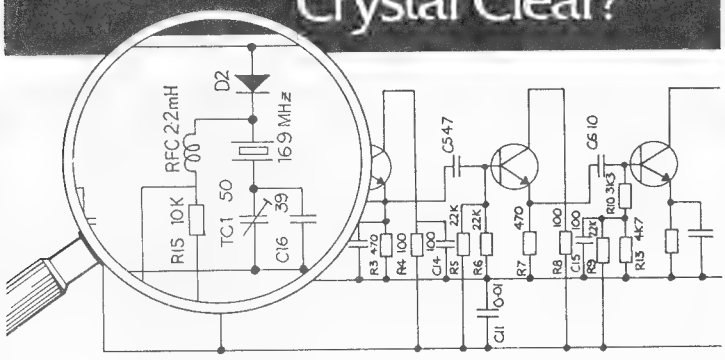
Present and past members of the WKARS:

G2 BT LA0DO
G3 AIO AMG FVV HOU IOM KIP LMS PEY TLB WKS XPX YOU YPY ZYP ZZD
G4 BIA BKG BOO BWH CCQ CNE DFY DIX DRB DRV DYF EMV ERW EUK FDC FWG FYG GTN HUW IBQ IJH JFD JZP MXL NAJ OSH OTV OYW PBF PML RPQ RWT SGI SLD UDW UPI
G6 TQ BNJ DUU HVW JUB HFX RHU OOE KLG TBO TBY TKG UJY
G8 CAA CDD CDP FFG GYB IJH IWP KHF KNA KOA KPU KPZ KQJ LMV MLZ NOB OFO ORZ PWO RUX SAS UEH UFY UJM VMG VWN WLH WZK XCS ZXC

Apply to G4FDC, Alexander Korda, 5 Windmill Court, Tunbridge Wells, TN2 4SU, England, GB.

Good hunting. 73 es DX de Mike. VK6HD
AR

Crystal Clear?



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39 SCORESBY ROAD, BAYSWATER, VICTORIA 3153.
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RAKON EMPLOYS STATE OF THE ART FABRICATION TECHNIQUES TO PRODUCE:
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NB: RESISTANCE WELDING OFFERS BETTER LONG TERM STABILITY.
* **PRICES — "THAT ARE REALISTIC".**
* **NORMAL DELIVERY:** 10 WORKING DAYS ARO.
* **FAST DELIVERY:** IS AVAILABLE, IE: WITHIN 5 DAYS — AT SURCHARGE RATES.

* Where the crystal parameters are unknown, our experienced engineering staff is available to advise on selection of the correct specification.

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TOYO COMMUNICATION EQUIPMENT CO LTD

Offering an extensive range of their products including:— quartz crystal filters, monolithic crystal filters, packaged oscillators TCXO and VCXO, DIL clock oscillators and SAW devices.

NOTE: Inquiries re price and delivery should be forwarded to above address.

CONTESTS

Reg Dwyer, VK1BR
FEDERAL CONTEST MANAGER
Box 236, Jamison, ACT 2614

CONTEST CALENDAR

JUNE

9-10	South American CW Test
16-17	All Asian Phone Test
16-17	Nine Land QSO Party
23-24	ARRL Field Day ††

JULY

7-8	Venezuelan Phone
7-8	NZART Memorial Test
14-15	International QRP Test ††
28-29	Venezuelan CW
28-30	County Hunters CW Contest

AUGUST

4-5	European CW Test ††
11-12	Remembrance Day Contest
18-19	All Asian CW ††

SEPTEMBER

15-16	VK Novice Test

NOTE: The † signifies an unconfirmed contest.

ROSS HULL RESULTS 1984

CALL-SIGN	7 DAY PHONE	CW/ RTTY	2 DAY PHONE	CW/ RTTY	
VK6KZ	115234	— **	35140	—	7 day winner
VK3ZBJ	99840	—	31336	— **	2 day winner
VK3ZHP	91742	— *	28777	—	
VK3YV	46458	—	15612	—	
VK6HK	36638	—	12474	— *	
VK4DO	11962	— *	4250	—	
VK2EDB	11037	— *	3552	—	
VK6SM	10296	385 **	4605	160	7 day CW winner
VK2QF	7054	—	2788	— *	
VK3VF	5769	—	1683	—	
VK3YRP	3218	—	1154	—	
VK4ZTV	2184	—	816	— *	
VK7ZAP	1820	— *	850	—	
ZL2CD	1260	— *	880	—	
VK2YME	—	168 *	4830	50	2 day CW winner
VK2KFJ	—	166	4720	48 *	

The winner of the 1984 Ross Hull VHF contest trophy is VK6KZ Walter Howse for another year, he has consistently improved his score even with the reduction of bonus points for the VK6s. So it can be done! Congratulations to Walter and to all of you who took the time to participate in this, our only VHF contest.

Certificates will be awarded to the overall two day winner, also certificates will be sent to the individual State winners, for this year anyway, it will depend on the new FCM whether he/she carries this format on to the next contest.

COMMENTS FROM THE LOGS

The 6 metre opening here was the best I have experienced in my forty years of operating ZL2CD

I believe the minor rule changes are an improvement, however the contest seems to start a week too early, still trying to stimulate some interest in VHF/UHF contest, but little luck yet. VK3YRP.

Found many operators reluctant to give reciprocal numbers for some obscure reason and an absolute absence of decent CW QSOs to build up a decent score. VK2QF.

Much better 6 metre openings and also much longer, this along with the improved gear and the more active stations helps to gain a better score. This year I had a consistent band multiplier of seven bands whereas last year I had four percent of the best days for this multiplier.

Country operators were more active this year but the twelve hour rule caused some operating difficulty with the occurrence of the daylight saving and the UTC day. VK6KZ.

Modifications to the rules have been for the better, award the best State winners. Recommend the same rules next year. VK6HK

Waited twenty five minutes for a contact with VK0 and was still the first to exchange a contest number with him (001). Contest is biased toward the multiband operators. Worked all areas except VK0, VK8 and VK9 on 2 metres New rules seem to make the contest more equitable and hence more attractive to the majority of operators VK3ZBJ.

Please give consideration to making single section only ie 144, 52 MHz only, there is very little activity out of the city on the other bands which excludes many of the country amateurs. VK4DO

JOHN MOYLE VHF FIELD DAY RESULTS

CALLSIGN	POINTS	SECT	HOURS	PLACE	C/CHP POINTS
VK2PEP/YUP	2505	Port/A	24	1	10
VK3BBB	2060	Port/A	24	2	9
VK5EE	1492	Mobile/A	24	3	8
VK2HT	1444	Port/A	24	4	7
VK1LF	178	Port/A	24	5	6
VK3AUQ	1202	Port/B	24	1	10
VK3TX	671	Port/B	24	2	9
VK3ANR	12376	Club/D	24	1	10
VK3CNE	5817	Club/D	24	2	9
VK1WI	3214	Club/D	24	3	8
VK2FFG	2566	Club/D	24	4	7
VK3BHD	2131	Club/D	24	5	6
VK5ACE	2091	Port/D	24	6	5
VK4WIZ	1009	Club/D	24	7	4
VK4RR	745	Port/D	24	8	3
VK3ATL	10523	Club/E	24	1	10
VK3APC	8598	Club/E	24	2	9
VK3BML	7853	Club/E	24	3	8
VK3ATM	7791	Club/E	24	4	7
VK2DBK	6195	Club/E	24	5	6
VK2WG	5871	Club/E	24	6	5
VK4WIG	4103	Club/E	24	7	4
VK3AWS	1936	Club/E	24	8	3
VK4WIT	1392	Club/E	24	9	2
VK6AAE	3582	Club/G	24	1	10
VK5BW	3248	Port/G	24	2	9
VK6ANW	2218	Club/G	24	3	8
VK3YTT	935	VHF/H	24	1	10
VK3DMW	1320	Home/I	24	1	10
VK5NOD	1005	Home/I	24	2	9
VK4AIX	920	Home/I	24	3	8
VK4AOE	770	Home/I	24	4	7
VK5AGX	720	Home/I	24	5	6
VK3AEW/1	590	Home/I	24	6	5
VK3XF	365	Home/I	24	7	4
VK1NEU	305	Home/I	24	8	3
VK2KFJ	250	Home/I	24	9	2
VK4YN	225	Home/I	24	10	1
L30371	760	SWL/—	24		
L40804	595	SWL/—	24		
L30042	490	SWL/B	24		
VK3BAF	1590	Port/A	6	1	10
VK3BTL	932	Port/A	6	2	9
VK3CKD	693	Port/A	6	3	8
VK3ADW	649	Port/A	6	4	7
VK2AHV	635	Port/A	6	5	6
VK5YO	284	Port/A	6	6	5
VK4YN	75	Port/A	6	7	4
VK3XU	426	Port/B	6	1	10
VK2JM	221	Port/B	6	2	9
VK8TTY	142	Tarts/B	6	3	8
VK3SP	967	Port/C	6	1	10
VK2PWS	100	Port/C	6	2	9
VK3CMZ	2652	Club/D	6	1	10
VK4WIM	1509	Club/D	6	2	9
VK3XK	1353	Port/D	6	3	8
VK2AZD	1177	Port/D	6	4	7
VK3BSP	1001	Club/D	6	5	6
VK3DPW	759	Mobile/D	6	6	5
VK3RI	745	Club/D	6	7	4
VK6ACG	159	Club/D	6	8	3
VK3ER	5775	Club/E	6	1	10
VK4WIN	2399	Club/E	6	2	9
VK3SBC	2021	Port/E	6	3	8
VK3AUI	814	Port/E	6	4	7
VK1FB	681	Port/E	6	5	6
VK8DA	662	Club/E	6	6	5
VK3AOJ	176	Port/F	6	1	10
VK4YX	2383	Port/G	6	1	10
VK2AOA	1645	Club/G	6	2	9
VK5ARC	1009	Club/G	6	3	8
VK5BS	90	Port/G	6	4	7
VK3AVJ	625	VHF/H	6	1	10
VK3KTO	330	Port/H	6	2	9
VK4YJF	94	VHF/H	6	3	8
VK6WH	92	Club/H	6	4	7
VK5FF	700	Club/I	6	1	10
VK2BQS	370	Home/I	6	2	9
VK7AL	345	Home/I	6	3	8
VK4AQK	325	Home/I	6	4	7
VK6WH	255	Home/I	6	5	6
VK3KS	215	Home/I	6	6	5
VK5QX/GW4	75	Home/I	6	7	4
L60036	415	SWL/ –	6		
RAMSEY	365	SWL/—	6		

NZART MEMORIAL CONTEST

When? Sat and Sun 7th and 8th July from 2000 to 2400 hrs each night, divided into four operating periods, 2000 to 2200 and 2200 to 2400 each night.

CONTACTS

A station may be contacted twice during each period, once on phone and once on CW, provided the contacts are not successive.

CYPHERS

Five serial numbers for phone and six for CW (RST and three figure SERIAL eg: 599001).

SCORING

Phone: Each area will score fifteen points for the first contact then each subsequent contact scores one less point each time until the fifteenth contact when all further contacts will score only one point.

CW: The same as the phone scoring, except that the points will remain at five after the 11th QSO.

LOGS

In order of Date; Time; Station Contacted; Phone or CW; Cypher Sent; Cypher Received; Points Claimed.

Logs to be sent to Jock White, NZART Contest Manager, 152 Lytton Rd, Gisbourne, New Zealand. Must arrive no later than 10th August, 1984.

A photocopy of the rules may be obtained from the FCM at the above address.

SEANET WORLD WIDE DX CONTEST 1984

CONTEST DATES AND TIMES: CW contest: 0001 UTC Saturday 21st July 84 to 2359 Sunday 22nd July 84. FONE contest: 0001 UTC Saturday 18th Aug. 84 to 2359 Sunday 19th Aug. 84.

BANDS 160 thru 10 metres

ENTRY CLASSIFICATION 1. Single band — single operator 2. Multiband — single operator 3. Multiband — multi operator

POWER INPUT As stipulated in the regulations governing the licence of the operator.

CONTEST CALL "CQ SEA" for CW contest. "CQ SEATEST" for FONE contest.

REPORTING RS/RST report plus serial numbers starting with 001 and increased by one for each successive contact. SEE ALSO RULE 3(d).

SCORING RULES

1. For stations OUTSIDE SEANET AREA:

(a) Contact with stations WITHIN SEANET AREA of the following prefixes:
DU, HS, YB, 9M2, 9M6, 9M8, 9V1, V85
20 points on 160 metres.
10 points on 80 & 40 metres.
4 points on 20, 15 and 10 metres.

(b) Contacts with other stations WITHIN SEANET AREA not listed above in 1(a):
10 points on 160 metres.
5 points on 80 & 40 metres.
2 points on 20, 15 and 10 metres.

(c) Contacts between stations OUTSIDE SEANET AREA will not be counted.

(d) Multipliers will be 3 points for each country worked, ie for countries between Seanet Areas only.

2. For stations in the SEANET AREAS

(a) Contacts with stations OUTSIDE SEANET AREAS:
10 points on 160 metres.
5 points on 80 & 40 metres.
2 points on 20, 15, and 10 metres.

(b) Contacts between stations WITHIN SEANET AREAS:
6 points on 160 metres.
3 points on 80 & 40 metres.
1 point on 20, 15 & 10 metres.

(c) Contacts between stations in own country will not be counted.

(d) MULTIPLIERS
Contacts with countries WITHIN SEANET AREA COUNT 2 points for each country worked.
Contacts with countries OUTSIDE SEANET AREA count 3 points for each country worked.

3. The final score will be the sum of the POINTS multiplied by the sum of COUNTRY MULTIPLIERS.

LIST OF SEANET AREA PREFIXES: A4, A5, A6, A9, AP, BV, CR9, C21, DU, EP, HL, HS, H44, JA/JE/JF/JG/JH/JI/JR ETC, JD1, JY, KA, KC6, KG6/KH2, KH6, KX6, P29, S79, VK, VQ9, V85, VS6, VS9K, VU2, XU, XV5, XW8, YB, YJ8, ZK, ZL, 3B6/7, 3B8, 3D2, 4S7, 4X, 5W1, 5Z4, 8Q7, 9K2, 9M2, 9M6/8, 9N1, and 9V1.

RESTRICTIONS: (a) Contacts on cross-modes or cross-bands or mixed CW/FONE logs will be disqualified.
(b) Operators are not allowed to transmit two or more signals at the same time.
(c) Only one contact per band with the same station will be counted.
(d) Contest numbers should begin with 001 on each different band.
(e) All entries in violation of the contest rules, incorrect statements in the submitted reports, taking points from duplicate contacts, and practices against the brotherhood of amateur radio will be disqualified.
(f) The decision of the Seanet Contest Committee shall be final.

ENTRIES, LOGS & SUMMARY SHEETS All entries must be in the form of logs and summary sheets. All Time must be in UTC. Entries must be received by The Contest Manager, Eshee 9M2FK, PO Box 13, Penang, Malaysia not later than 31st October, 1984. Results will be announced at the SEANET CONVENTION. If you require the results to be sent to you, please enclose IRCs together with your entry.

THE 25TH ALL ASIAN DX CONTEST

The purpose of this contest is to enhance the activity of radio amateurs in Asia and to establish as many contacts as possible during the contest periods between Asian and Non-Asian Stations.

CONTEST PERIOD:
(1) Phone. 48 hours from 0000 UTC 16th June, 1984 to 2400 UTC 17th June, 1984
(2) CW: 48 hours from 0000 UTC 25th August, 1984 to 2400 UTC 26th August, 1984

BANDS:
Amateur bands under 30 MHz.

ENTRY CLASSIFICATIONS:
(1) Single operator, 1.9 MHz band (CW only)
(2) Single operator, 3.5 MHz band
(3) Single operator, 7 MHz band
(4) Single operator, 14 MHz band
(5) Single operator, 21 MHz band
(6) Single operator, 28 MHz band
(7) Single operator, Multi band
(8) Multi operator, Multi band

POWER, TYPE OF EMISSION AND FREQUENCIES:
Within the limits of own station licence

CONTEST CALL:
(1) Phone . . . "CQ Asia"
(2) CW . . "CQ AA"

EXCHANGE:
(1) For OM stations. RS(T) report plus two figures denoting operator's age
(2) For YL stations RS(T) report plus two figures "00 (zero zero)"

RESTRICTIONS ON THE CONTEST:
(1) No contact on cross band.
(2) For participants of single operator's entry.
Transmitting two signals or more at the same time including cases of different bands is not permitted.
(3) For participants of multi operator's entry
Transmitting two signals or more at the same time within the same band, except in case of different bands, is not permitted.

POINT AND MULTIPLIER:
(1) Point . . . Perfect contact with Asian stations (excluding US auxiliary military radio stations in the Far East, Japan) will be counted as follows.
1.9 MHz band ..... 3 points
3.5/3.8 MHz bands ..... 2 points
Other bands ..... 1 point
(2) Multiplier . . . The number of different Asian Prefixes worked on each band According to the WPX Contest rules

Note. JD1 stations on Ogasawara (Bonin and Volcano) Islands belong to Asia. JD1 stations on Minamitori Shima (Marcus) Island belong to Oceania

SCORING:
(The sum of the contact points on each band) X
(The sum of the multipliers on each band)

INSTRUCTIONS ON THE SUMMARY AND LOG SHEET:
(1) Summary sheet Please use a summary sheet
(2) Log sheet
(a) Please use a separate sheet for each band
(b) Please keep all times in UTC
(c) Please fill in the blanks of "multiplier" by countries or prefixes, only the first time on each band.

AWARDS
(1) For both phone and CW, certificates will be awarded to those having the highest score in each entry in proportion to the number of participants from each country and also those from each call area in the United States
(a) The number of participants under 10 . . .
Award only to the highest scorer
(b) From 11 to 20
Award up to the runner-up
(c) From 21 to 30 . .
Award up to the top third
(d) From 31 or more
Award up to the top fifth
(2) The highest scorer in each Continent of the single operator multi band entry will receive a medal and certificate from the Minister of Posts and Telecommunications of Japan.
(3) The highest scorer of the multi operator multi band entry in each Continent will receive a medal

REPORTING:
(1) Submit a summary sheet and logs of only one classification.
(2) Both log and summary sheet must arrive in JARL, PO Box 377, Tokyo Central, Japan on or before the following dates.
(a) Phone ..... 30th September, 1984
(b) CW ..... 30th November, 1984

DISQUALIFICATION:
(1) Violation of the contest rules
(2) False statement in the report
(3) Taking points from duplicate contact on the same band in excess of 2 percent by the total

ANNOUNCEMENT OF THE RESULT:
(1) Phone ..... About February 1985
(2) CW ..... About April 1985

COUNTRIES LIST OF ASIA:

A4,	UJ8/UK8J.R.,
A5,	UL7/UK7,
A6,	UM8/UK8M. N.,
A7,	VS6
A9,	VS9M/8Q,
AP,	VU,
BV,	VU (Andaman & Nicobar Is),
BY,	VU (Laccadive Is),
CR9,	XU,
EP,	XV, 3W
HL/HM,	XW,
HS,	XZ,
HZ/7Z,	YA,
JA-JS,	YI,
JD1 (Ogasawara Is),	YK,
JT,	ZC4/5B4,
JY,	1S (Spratly Is),
OD,	4S,
S2,	4W,
TA,	4X/4Z,
UA/UK/UV/UW9-ø,	7O (S Yemen),
UD6/UK6C D. K.,	9K,
UF6/UK6F. O. Q. V.,	9M2 (West Malaysia),
UG6/UK6G,	9N,
UH8/UK8H,	9V (Singapore),
UI8/UK8A-G.I.L.O.T-Z.,	(AbuAil)

You may have contest results by enclosing one IRC and SAE with your log

Stations and scores of Australian stations participating in the 1983 contest.

PHONE		CW	
* VK2XT	95290	* VK5AFX	13920
VK5YM	50317	VK3RJ	4200
VK5NOD	33733	VK2DID	2316
VK2VPD	9100	* VK4XA	10850
* VK6NCW	48692	* VK2APK	155856
VK2PFQ	41708	VK2BQQ	130096
VK2KCN	19608	VK2WU	46496
VK3BVW	11804	VK3AEW	42368
VK7NKL	3208	VK5GZ	23436
* VK6NSD	234016	VK4ANY	14596
VK5FF	127410	* VK3ER	203830
VK6AOK	24910		
VK6NGG	24190		
VK2ANE	15580		
VK2PWS	18		

* JARL Certificate

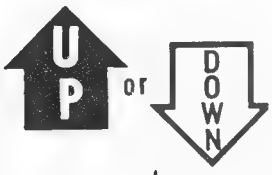
AR

NOTICE

All copy for inclusion in August 1984 Amateur Radio must arrive at Box 300, Caulfield South, 3162 no later than midday 25th June.

SKYTRIM
A TOWER OF STRENGTH

CRANKS



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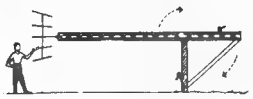

TILTS OVER

Tower head accessibility from ground level makes installation and maintenance of antennas etc., a breeze!

For details, contact:

Communication Towers Australia Pty Ltd
P.O. Box 1201,
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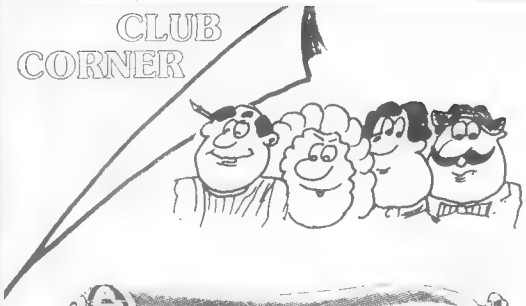
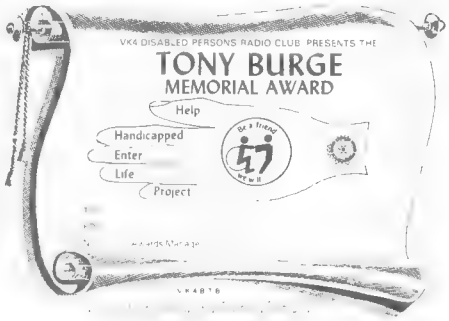
Tel: (02) 635 6572
Cables: AUSSITOWER Sydney


CLUB
CORNER



THE VK4 DISABLED PERSONS RADIO CLUB, VK4BTB

(Incorporating the "Tony Burge Memorial Award")

Tony Burge, VK4BAC went silent key at the age of nineteen on the 15th January, 1983, a direct result of muscular dystrophy. Tony was an ardent amateur, having been a listener before obtaining his Novice in January, 1981, followed by his full call in December of the same year. Quite an achievement when you consider he was severely disabled, having very limited use of his arms and hands. Amateur radio contributed greatly to Tony's enjoyment of life, showing a classic example of what the hobby can do for disabled persons everywhere.

His family donated his equipment to the "Help Handicapped Enter Life Project (HHELP) — Darling Downs" with the request that their son and brother's name be perpetuated in some way. As a direct result the "VK4 Disabled Persons Radio Club" (VK4 DPRC) was formed under the mantle of HHELP.

The late Tony Burge operating the equipment his family donated to VK4BTB.

In conjunction with the forming of the Radio Club the "Tony Burge Memorial Award" was also made available.

The primary objective behind the forming of the club is to promote the hobby of amateur radio among disabled persons (whilst not overlooking able bodied persons), thus creating a unique opportunity to fully participate on an equal basis with amateur operators the world over. "Equality and Participation" is the international motto of the disabled.

Senator Gerry Jones

On 27th August, 1983 Senator Gerry Jones, representing the Federal Minister for Communications the Hon Michael Duffy, officially dedicated Tony's equipment, opened the VK4 Disabled Persons Radio Club, then Tony's father Bill introduced the Award.

Mr Bill Burge introducing the Tony Burge Award.

In June 1983, the Department of Communications issued a licence to the Project to establish and operate an amateur radio station under the callsign VK4BTB from its premises at 221 Hume Street, Toowoomba.

In response to a recent request, the Department is prepared to grant the Project permission to operate their amateur radio equipment in a portable capacity without the need to first obtain Departmental authority. This will make it easier for club officials to transport the station to club members who have difficulty attending the Station premises.

A regular net is held each Friday night at 0900 UTC, on 3.590 MHz. Both Roley Norgaard, VK4AOR who is the Station Manager, and Graeme Whitehead, VK4NYE have the Department's approval to operate the Club callsign from their own stations for the purpose of promoting the Club's award. Hope to meet you there.

CONDITIONS FOR "TONY BURGE" MEMORIAL AWARD

SECTION 1

An amateur operator who adequately demonstrates an operational amateur station to a disabled person or persons will qualify for the Award.

Notes —

(i) Applications for this section should include Name, Callsign, Address, Date of demonstration, and brief outline of demonstration and award fee.

(ii) The Awards Manager shall exercise his discretion as to the merit of the demonstration as a qualification for the Award.

(iii) Demonstrations on or after 0001 UTC on 15th June, 1983 shall be eligible.

SECTION 2

An amateur operator or club who accumulates ten points. Points may be obtained as follows:

(a) Contacting the Club Station VK4BTB — four points.

(b) Contacting a member of the VK4 Disabled Persons Radio Club (either licensed or operating under supervision) — one point.

Notes —

(i) For (a) and (b), only one contact per band per twenty four hour period can be counted.

(ii) Applications for this section should include Name, Callsign, Address, Log extract countersigned by another person, and the Award fee.

(iii) Contacts on or after 0001 UTC on 15th June, 1983, shall score points.

SECTION 3

A SWL who hears and records contacts as per Section 2. Details and points applying to Section 2 apply to this Section.

Successful applicants for the Award will automatically be eligible to be granted membership of the "VK4 Disabled Persons Radio Club" and can allocate points as per the conditions for the Award.

Applications for the Award and the fee of $2.00 should be sent to: The Awards Manager, PO Box 3126, Town Hall, Toowoomba, Qld 4350. The Award is 300 x 250 mm and is blue printing on a cream background.

ELIGIBILITY FOR MEMBERSHIP OF VK4 DISABLED PERSONS RADIO CLUB

(i) The Committee of VK4 DPRC (hereinafter called the Club) may admit to membership for a specified period of time those eligible

(ii) Members of the Help Handicapped Enter Life Project shall be eligible for membership of the Club

(iii) Recipients of the "Tony Burge" Memorial Award shall be eligible for membership of the Club

(iv) Any other interested person who applies in writing to the above address giving name, address, callsign if any, type of disability (optional), will be eligible for membership

(v) Any member of the Club shall be eligible to renew membership at the end of the specified period for current membership.

(vi) The Committee of the Club may determine from time to time conditions of, privileges of, and fees for, membership

Notes —

(a) At the present time the Committee of the Help Handicapped Enter Life Project is deemed to be the Committee of the Club

(b) At present no membership fees apply for the Club.

AR

NEW TV REPEATER

Arthur VK7SE writes all the way from Penguin, Tasmania, to mention that their

repeater VK7RTV (444.25 in, 426.25 out) has been running since October 1983. Solar cell powered, it is sited on Mount Duncan on the northwest coast, and some 45 minutes walk from the nearest spot reachable by car. Every component of the repeater had to be carried by humans up a steep and rough bush track — but it was well worth it!

from CQ-TV No 125
AR

ORANGE AMATEUR RADIO CLUB

The OARC took the opportunity to organise a display at an Electronics Display held at the Amoco Hall on 29–31 March 1984.

The club display was well received by the public and stood out well amongst the commercial equipment.

A moving display was made available from OTC as well as literature, and various working examples of amateur equipment.

The most popular display was a key and Morse reader which the public were encouraged to use to send their name in CW to the screen.

The organiser was Bob VK2DSM.

Inflating a 1943 US Army Signal Corps balloon with hydrogen. The balloon was used to support the 100m vertical used in the JM Field Day Contest 1984 by VK2AOA — Orange ARC. L–R Di VK2DZM, Bob VK2DSM and Kim VK2ASY. AR

MOORABBIN AND DISTRICT RADIO CLUB

The Moorabbin and District Radio Club held a very successful Trade Display at the hall of the Combined Clubs in Turner Road, Highett on the 7th April 1984.

The display was officially opened by the Mayor of Moorabbin at 11.00 am.

It was one of the most interesting displays held in Victoria mainly due to the participation of Kenwood, Icom and Yaesu Distributors and Importers, showing their full range of products.

The WIA Victorian Division was also well

The Mayor of Moorabbin, Cr Ann Dunkley with the President of MDRC, Warren VK3DWI, during her opening speech.

represented and new members were signed up on the spot. The book (Magpubs) stall attracted good attention and did a roaring trade.

Some valuable prizes were taken home by the lucky holders of tickets. Winners were: Kenwood R600 receiver won by Alf VK3LC, Icom world globe by Margaret VK2DQU, Yaesu world clock by Murray VK3HZ and the Parameters digital multi meter went home with Steve VK3DCA.

Cr Dunkley showing her interest in amateur radio equipment.

All participants are to be congratulated on their well organised and clean displays.

contributed by John VK3WZ
Photographs by John Hill VK3WZ AR

RADIO AMATEURS OLD TIMERS CLUB NEWS

The Annual Dinner of the Victorian members of the RAOTC was held at the City and Overseas Club of Melbourne on the 15th of March. The attendance was good, the food excellent and many interstate members were welcomed. Max Hull, VK3ZS was Master of Ceremonies. The guest speaker was Doug Twigg, VK3DIJ who was Senior Communications Officer of the Antarctic Division. Doug spoke about the early history of Antarctic exploration and then about communications in this area, from Mawson's first radio stations in 1911, to the sophisticated systems and equipment used today. Question time was very extended and the dinner ended with a vote of thanks to Doug.

The RAOTC, with over 600 members, is open to all amateurs who obtained their licence at least twenty five years ago. (They need not hold a call sign now). It provides a yearly luncheon and dinner, twice yearly bulletins, on air skeds and monthly net broadcasts. On air, you might like to remember with other amateurs the fun and problems of building phasing rigs or home ground crystal rigs, before the advent of the "black box" era; or discuss the new techniques of RTTY or satellite repeaters. At our dinners you will be able to "eyeball" with on air friends. The membership fee of the RAOTC is trifling, only $5 for a lifetime. This does not include the annual lunch or dinner, which is charged for at catering rates. Send a self addressed envelope to the Secretary, Harry Cliff, VK3HC, PO Box 50, Point Lonsdale, Vic 3225 to receive a membership application form. JOIN THE CLUB!!

Contributed by Kevin Duff VK3CV. Publicity Officer
AR

WESTLAKES ARC RTTY GROUP

As the club has purchased a new teleprinter, a move has now been made to start a teleprinter group so that as many members as possible in the Newcastle area can have access to the unit.

The unit is a Siemens model 100 which has been put into full operational order by Dennis VK2XDW.

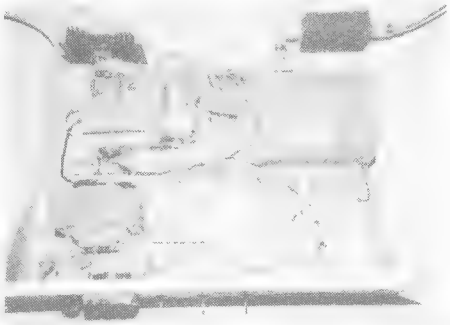
The teleprinter group intends holding regular meetings in the Westlakes library.

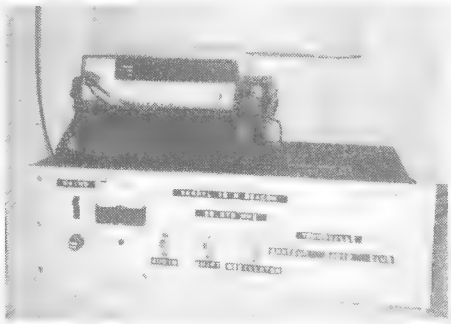
Further information may be obtained from Rudy VK2KNA.

from Westlakes ARC Monthly Newsletter, March 1984
AR

TOWNSVILLE TEN METRE REPEATER

VK4RTL is located on Mount Stuart in Townsville.





It is sponsored by Townsville Amateur Radio Club and transmits on a frequency of 28.270 MHz ± 50 Hz with identification of FSK "VK4RTL Ten". Antenna is a quarter wave ground plane with 5 watts output.

AR

FORWARD BIAS

VK1 DIVISION

John MacPhee VK1KJM
36 Kavel Street, Torrens, ACT 2607

It's not very often that I get a chance to congratulate an amateur who lives outside the ACT, however, this month I do have the pleasure of congratulating a VK7 amateur.

Bob VK7NBF, of Falmouth Tasmania, on the 1st April, (no, it's not a late April Fool's joke) made contact with John VK1WK. This gave Bob the 100 contacts necessary for Bob to qualify for the VK1 Award Gold Upgrade. Bob had been working on this award, every Sunday night on the VK1 Awards Net for the past two years. From all the VK1s, *Congratulations* Bob on a job well done.

On the home front, we have our very own SWL, who applied for his VK1 Award Gold Upgrade. This was none other than Brian Rhynehart, L1OO71. Brian, has been a very keen SWL for many years, and from all of us Brian, *Congratulations*. Brian has also recently passed the Limited Operators theory exam and now sports a Z call, congratulations again Brian.

ITU COMMUNICATIONS DAY

The Belconnen Mall was again the site chosen for our "meet the people display", as we do on the 17th May each year. This year I believe was one of the best displays of what amateurs and their hobbies are all about. There was, as usual, great interest taken by the public in the static display, the range of equipment and of course, all amateurs were on hand to explain what each piece of equipment did, and were kept busy answering many questions on the various forms of amateur radio. The day on a whole was a great success and we should see some new members on our books as a result of the efforts of the VK1 Division amateurs.

CW FOR THE NOVICE

The summer months had proved quite interesting to the novice DXer. Listening around 21.125-21.140 from 1100 UTC, the European stations were coming through with good signals. Don't be afraid of the high speed and QRM, get out there and call CQ — you need the practice!

In the morning, from 2300 UTC onwards, the US and South Pacific areas are good catches for the CQ starter. The 10 metre phone and CW sections are sporadic in the VK1 morning, 2400 UTC onward . . . most breaks seem to be towards the USA and Japan . . . some South Pacific and Asian DX.

Keep trying to put VK1 on the CW map. You will be surprised at the response a VK1 CW CQ will bring — you may even get that exhilarating "pile-up"!!!

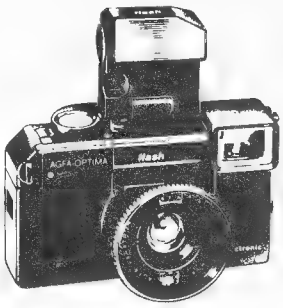
The 80 metre section is also something of a challenge — the evenings in eastern Australia, see the path to New Zealand and WA open — despite the QRN . . . Good Keying.

This last item was given to me by John McKendrick VK1NVR. Thanks John for the CW info and you never know, one day you may just hear me on the key.

That's all for this month, till next time, 73 and good DX!

John A MacPhee, VK1KJM
Forward Bias Editor & Education Officer
AR

MAY'S BEST PHOTOGRAPHS



This month we had a divided decision. The judges at Waverley Offset Printing and Quadricolor Industries selected the front cover photo while Agfa-Gevaert chose the group of photos titled "Amateur Antennas" on page 23.

These photograps will now be considered for the Agfa camera prize after the selection of the best photo in this magazine.

COULD THE HEINEKEN KIDNAPPING HAVE BEEN AVOIDED?

With the proper precautions his rescue could certainly have been expedited.

To meet the threat of kidnapping, CCS has developed a specialised electronic kidnap recovery system. The JVR 500 consists of a tiny transmitter, so small it can be carried at all times by anyone vulnerable to attack. The JVR is constantly emitting a signal . . . the naked eye can't see it, but with a special infrared viewer the signal becomes visible in any light, in any weather.

With this infrared viewer, security personnel can easily and quickly scan a crowd. A victim can be followed or located without the kidnapper's knowledge. Even vehicles or cargo of value can be kept under constant surveillance.

CCS predicts that this extraordinary kidnap recovery system will be used by executives, politicians and others in high visibility, high risk positions.

AR

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CONTACT US FOR QUOTES

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 Mini Bulletin Editor
PO Box 1066, Parramatta, NSW 2150

The 1984/85 year for VK2 commenced with the AGM on the 31st March last. See April AR for details of awards. Sixty five members attended. The meeting appointed Gibson Pears and Co as Divisional Auditors. At the declaration of the new council there were six nominations, and hence a ballot was not required. The seventh council position is to be filled at the May council meeting. A report on the outcome of the general business has been given on the broadcasts and I will hold over a report in these notes until I have a transcript of the minutes to quote from, the twelve items resulted in long and detailed discussions. The six members forming the Council when the notes were prepared are:

Jeff Pages VK2BYY — President.
Peter Jeremy VK2PJ — Secretary.
Susan Brown VK2BSB — Vice President.
Tim Mills VK2ZTM — Vice President.
Mike Burns VK2AUE — Parramatta Property Officer.
Max Smith VK2YKF — Assistant Treasurer.

After the appointment of the seventh councillor I will detail the various positions each member looks after. A reminder here that all written correspondence to Councillors should be sent via the divisional office at PO Box 1066, Parramatta NSW 2150. The divisional office is open weekdays 11 AM to 2 PM, and Wednesday nights 7 to 9 PM. Phone (02) 689 2417. However, through lack of support, the Saturday openings have been terminated for the time being.

CONFERENCE OF CLUBS

The 10th C of C was held over 1½ days at Amateur Radio House in mid April. A report in detail later. The tentative date and location for the 11th C of C is Sunday, 4th November, hosted by the Bathurst Amateur Radio Club at Bathurst.

WICEN

WICEN exercises in the near future include the RVCP time trials on the Hawkesbury Saturday, 9th June. An air patrol event, Central Coast 16th June. A car rally at Batemans Bay 21st July and a fun run Balmain 22nd July. The annual City to Surf on 5th August. WICEN notes are included in the broadcasts or you may join the nets Thursday evenings in Sydney of repeater VK2RWS 7150 at 9 PM, or Statewide at 9.30 PM on 3.600 MHz.

BEACONS

The 10 metre beacon, VK2RSY at Dural, suffered a feedline problem during April and was on a standby antenna for the month. This may have been noted by those who use the facility, as a drop in signal level. The replacement feed line has less loss than the old one which may give the beacon a slightly increased ERP. VK2RSY is sponsored by the division and there are beacons on 10, 6 and 2 metres, 70 cm and one planned for 23 cm.

In addition there are 6 metre beacons at Gunnedah, VK2RGB — 52.425 MHz and Newcastle, VK2RHV — 52.325 MHz, sponsored by local groups.

REPEATERS

The details for the next callbook have just been compiled and this state has thirty four — 2 metre and twelve — 70 cm repeaters. Applications are currently being received from various groups for additional 70 cm local systems for the Sydney region. If approved, they will be on channels from the second repeater window (439-440 MHz), since the first window is nearing saturation in the present stage of development. Interest is being shown in Newcastle to develop a 23 cm repeater. Packet radio is progressing quietly as well in VK2. Main transmission area is 2 metres (Ch 7600 Simplex). Details about this mode may be obtained from Jim VK2BVD or John VK2ZXQ, QTHR. ATV is also quiet for a state of our size. Wagga has recently had an ATV repeater licensed. In Sydney there is a weekly transmission by the Gladesville ARC, Wednesday evening on 580 MHz, Ch 34. There is a small amount of other activity on both 70 and 50 cm. For those looking for DX TV, contact Vic VK2BTV on the Central Coast who transmits a signal most evenings and week-ends on 580 MHz.

COMING EVENTS

June/July includes the fireworks night at Dural on the 2nd, Port Macquarie field day over the holiday weekend 9/10th. BBQ Dural 1st July. Further reminders on broadcasts at 11 AM and 7.30 PM Sundays.

Lead times for notes on coming events is about two months before the event. For example, to be included in the August AR, the notes are compiled in mid June. If you would like something included about your club, event or activity, allow plenty of time. Notes for divisional broadcasts should reach the office by Friday's mail. Late news to Dural is a problem and has to be limited to a simple ten to fifteen words item.

AR

VK3 WIA NOTES

Jim Linton, VK3PC
DIVISIONAL PRESIDENT
VK3 DIVISION

THE RTTY FIXERS GROUP

The air had two distinct odours — methylated spirits and light machine oil — the scene was reminiscent of Santa's workshop — merry workers darting around the various workbenches or with hands and heads buried into their jobs.

They're a dedicated group who revel in refurbishing Siemens model 100 teleprinters.

The work goes on until someone reluctantly draws attention to what the group quaintly refers to as "the pumpkin hour".

In a flash machines, bits and pieces, paper tape and tools disappear just as if the Fairy Godmother herself had waved a magic wand.

Divisional Disposals Officer, Fred McConnell, VK3BOU, and his band of helpers have been responsible for turning disposals teleprinters — many of them dirty and incomplete — into clean, reliable machines. They're adjusted to 45.45 Baud; tested and sold to eager members at reasonable prices.

News of the Victorian Division's teleprinters has spread interstate, with one sale earlier this year of a batch to Wagga Wagga and another to VK5.

Benefits from the RTTY Fixers Group include a sizeable profit for the Division's disposals operation — and it has meant expertise in the popular Siemens machines being spread throughout the amateur radio fraternity.

An off-shoot from this has been two successful RTTY workshops with the "experts" showing anyone who wants to learn about M100 operation, maintenance and techniques for fault finding.

While members of the RTTY Fixers Group have worked anonymously, they each deserve full recognition for the sterling service given to the Institute.

AR

QSP

HANDICAPPED AID PROGRAMME

Mainly due to declining interest and limited resources, HAP-Australia has disbanded. (HAP-Australia was a group of enthusiasts dedicated to introducing the disabled to the fascinating world of Short Wave Listening).

HAP will now be absorbed into the Radio Enthusiasts' Club of the Blind — a club based in Melbourne. This club has similar aims and objectives to the HAP philosophy, of encouraging the participation of the handicapped in electronics, particularly the visually impaired.

The Radio Enthusiasts' Club of the Blind has an excellent Tape Newsletter and also produces a fortnightly radio programme.

Further information on the Club may be obtained from: The Radio Enthusiasts' Club of the Blind, C/- Mr David Ditchfield, The Association for the Blind, 454 Glenferrie Road, Kooyong, Vic 3144.

from the final HAP Newsletter, March 1984

AR

VK4 WIA NOTES

Bud Pounsett, VK4QY
Box 638, GPO, Brisbane, Qld 4001

1984 CLUB CONFERENCE 14-15 APRIL

The annual event that usually takes place in mid-April underwent a name change. The Queensland Radio Club Workshop will, henceforth, be known as the Queensland Radio Club Conference.

Whatever it might be called, this get-together of club delegates from all over our huge state is still the most important single event in the amateur radio calendar in VK4.

It brings together old timers, newcomers, CW men, phone operators and some from specialised groups, city dwellers and those from the relatively local QRM-free country areas. *For what purpose? To exchange ideas, to meet one another, to debate matters of amateur interest on both a state and a federal level and to brief our two federal council delegates to the Federal Convention.*

For several years, VK4 federal councillors have influenced, very greatly, a lot of important decisions made at Federal Conventions. So much so that other states have taken our lead and are bringing representatives of the rank and file of amateurs together to discuss matters of mutual concern. The Queensland delegates to the Federal Conventions have been able to argue their case strongly because they know the needs and wants of a very broad cross-section of the amateurs of Queensland.

The 1984 Conference of Radio Clubs was described by all who attended as a most outstanding success, better than any of the previous workshops. Several factors contributed to this pleasing result. We have a very competent and experienced chairman in David Jones, VK4NLV; the preparation was well done; a lot of delegates knew the ropes from past workshops and the discussions concerned meaty, important issues. Most of the simpler, mundane, routine problems of our Division have been solved in past years.

Twenty one radio clubs were represented by thirty one delegates of whom seven hold novice licences. Among the club representatives were only three amateurs who hold two letter calls, a good indication that there is lively interest in amateur affairs by more recently qualified operators. The conference was honoured by the presence of Mr Reg Macey, the Institute's Federal Secretary and by the Honourable Mr L J Keogh, MHR, the Member for the Federal seat of Bowman in South East Queensland. Mr Keogh is a member of the Federal Government's Back Bench Committee on Communications. The back bench committees serve to gather information from such organisations as our own and are in direct consultation with the appropriate Minister. Both Mr Macey and Mr Keogh addressed the meeting. Another important guest was the State Manager of DOC, Mr Geoff Perkins. Mr Perkins also spoke to the conference and answered a lively question session.

The Conference debated club motions and federal motions which were to be put to the Federal Convention. It is not possible to bring you much of the debate, the minutes run to some 45 pages of type written material. However, a few details are of interest.

Cairns moved that DOC be approached to upgrade the Morse speed requirement to 12 wpm. This motion was lost, twenty to one. This motion was prompted by the present 12 WPM not meeting international standards. However, the DOC spokesman said that the Department would examine licensees at higher speeds on request.

Another interesting motion that was lost had to do with vehicle "callsign" registration plates, the delegates were against this eleven to seven, with three abstaining. The conference solidly supported the proposal that co-operation with the Guide and Scouting Movement be an on-going activity, not just a limited one around JOTA time.

In the discussion regarding a VK3 Federal Motion about a special award for the Institutes 75th Anniversary, delegates were very much in favour of such an award. One suggestion was for a "75 AWARD" requiring ten contacts from each of the VK1 to VK7 call areas and five contacts from any VK8, 9, and/or 0 call areas, a total of seventy five contacts.

Another VK3 motion that provoked lively interest was that requesting a Low Frequency allocation. Our Federal Councillor, Guy Minter, VK4ZXZ, was instructed to put the case for an allocation for the band 150 to 160 kHz.

This very intense and valuable conference ended on Sunday afternoon with delegates giving their comments — here is a sampling.

TOWNSVILLE. *Most impressed with the professional manner in which the conference has been conducted.*

ATV GROUP. *Thank you, organisers, for a good weekend.*

BRISBANE AMATEUR RADIO CLUB. *Whole of the conference of most professional standard. Chairman kept things moving and above all was fair. Wish Guy and Ross all the best for the Federal Convention.*

SUNSHINE COAST. *Thanks to David and his helpers, best conference so far.*

FEDERAL SECRETARY. *Thanks for an enjoyable few days. Has been most interesting. Admires our Chairman and wishes that he would move to Melbourne.*

DIVISIONAL PRESIDENT. *On behalf of the Council, I would like to praise Dave and his team.*

At 4.10 PM the conference concluded. Some weary delegates only had a few minutes drive to be home, but then others had to travel back as far as Mt Isa and Cairns.

AR

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

Our first attempt at a Clubs' Convention was considered an unqualified success both by the organisers and the clubs who attended. The theme of the weekend should have been "Let's Re-invent Communications" and we certainly did communicate! Most of the Clubs went away happily with promises from the Divisional Council of visits where possible from Council Members (although VK8 may have to wait until one of us has a holiday or business trip up there); more exchanges of information — our Divisional Minutes to them and their Newsletters etc to us, (and hopefully more news for this column!) and in general just keeping the lines of communication open at all times.

The Parnanga Campsite proved to be an excellent venue and our VERY grateful thanks must go to the team of ladies whose efforts are probably still showing on various bathroom scales! I'm certain no-one felt hungry at any time over the weekend. To Wendy Clegg (who did the organising), Jill Wardrop, Liz Ratcliff and Pat Boxall our heart-felt thanks. Thanks must also go to David Clegg VK5AMK whose idea it was, and who did most of the organising. Last but not least, to Bill Wardrop VK5AWM, who led us through the weekend with the tact, diplomacy and quiet good humour that has made him a popular and well liked President over the past two years. As this is the end of Bill's term of office, I would like to take this opportunity to thank him and wish him well as our next Journal Editor. To Graham Iles VK5AT (and Joan VK5AVJ, who did all the typing) our grateful thanks for your term as Editor(s) and a job well done.

It certainly pays to advertise. After my plea in this column of April AR, I received two separate phone calls with offers of help with posters. Rosemary, the daughter of Maurie Phillips VK5ZU; and John Delahunty VK5BJD are both working on some designs to submit to the Divisional Council and our sincere thanks goes to both.

By the time you are reading this we will have a new Divisional Council, although because of the lack of nominations most of the faces will remain the same and only the portfolios will have changed! Don't be surprised if we have to co-opt a couple of volunteers this year, because two of our councillors have volunteered for the time consuming jobs of ESC and Publications Officers, which will leave us with a surplus of council positions to be filled. To those who are vacating positions, not forgetting John Mount VK5EV who has been Publications Officer for many years, and for a lesser period Disposals Officer, our grateful thanks.

DIARY DATES

5th June — Journal Folding (check Broadcast for confirmation of date)

26th June — General Meeting (speaker unknown)

AR

WA BULLETIN

Fred Parsonage, VK6PF
HONORARY SECRETARY VK6 DIVISION

ACTIVITIES OF THE WA REPEATER GROUP INC, FOR THE YEAR MAY 1983-1984

YAN DAN: In June 1983 Yan Dan Hill at Cataby on the Brand Highway was discovered. The farmer who owns the land gave us permission to use the site and kindly bulldozed an access road to the top of the hill. In July tests were performed simultaneously at Yan Dan and Ocean Hill (near Eneabba) with a view to using these two locations to fill in the gap between the Perth and Geraldton repeaters. A submission has been sent to DOC for this unique repeater linking situation. On the morning of the 12th November we erected our 60 ft tower on the peak of Yan Dan, the afternoon was spent putting up the farmer's 90 ft tower next to his residence, later we returned to install his TV antenna and coax and to test the site using both dipoles and co-linear antennae.

BUSSELTON: With thanks to the many amateurs who donated to the project, the group were able to make five trips to Busselton during December and January. During this time we cleared the site, dug the holes which necessitated the use of gelignite, poured 7 cu m of concrete using two mixers and fifty two bags of donated cement. Several days were spent erecting the 154 ft guyed tower, installing the coax and antennae and driving around testing the site. The next project will be running the 4 km of low resistance wire carrying 30 V DC along the fence posts between the shack and the farmhouse.

PROJECTS: Work is underway on the five new repeaters using IC22As for Rx and Tx, home brew control CCTRY, PSU etc. They are destined for Busselton, Yan Dan and Mt Saddleback — where our antennae have been installed after successful negotiations for the use of this location. If our linking submission is approved another will be allocated for Ocean Hill, the fifth being to replace the rather long in the tooth Ch6 — known as the Bunbury repeater. Currently under construction is a 300 W inverter for the group to make available 240 V AC for remote sites to enable maintenance and repairs. We have lent a set of cavities and donated the aerial to the Kambalda repeater project, also we have supplied the antenna for VK6REX at Exmouth.

ROLYSTONE SITE (Ch2): News broadcast links have been upgraded and maintained, the aerial has been replaced after being struck by lightning, new coax has been run for VK6RUF and . . . Hooray!! we have finally found the five year old fault on Ch2 — this was located in the PSU. As the site appears trouble free we will install the completed 80 W PA for VK6RAP.

TIC HILL (Ch4): VK6RTH2 = Ch3 on 146.750 was installed in Ticky with the two dipole array on the wind generator tower. This calling channel has a five second time out, please call your station and QSY to either simplex or another repeater. The calling channel is designed to enable you to monitor it at all times with the minimum amount of interference to your other conversations either on different frequencies, the telephone or person to person.

A remote Rx for Ch4 is under construction which is designed to cover the beach front areas, also an 80 amp generator has been installed on top of Ticky for standby power to assist the now doubled battery capacity from 500 - 1000 A/H. Unfortunately power line noise still plagues the site despite several attempts to locate it.

In addition to repeater group business several members have been assisting the WIA with the News Broadcasts. Inverted V antennae have been run from the top of the 100 ft tower at Tic Hill for 40 and 80 m. FM Broadcasts each Sunday have eminated from this site, multipath distortion seems to be the only problem and further tests are being conducted. The 10 m Beacon is now in operation at Tic Hill, we donated the antenna which we erected on a mast alongside the shack.

BUNBURY (Ch6): Several trips were made during the year as lightning struck twice necessitating extensive repairs, this site has an excellent coverage and it is hoped when the new repeater is installed a slight improvement will be noticed.

MEETINGS: Sunday nets will not be held unless a specific project requires the revival of these. Instead, the committee members of the WARG Inc will monitor Ch3 and be happy to receive or give any assistance.

Meetings will be held every two months, forward dates for your diary: AGM — 19th May, GM — 14th July, GM — 15th September, GM — 10th November. Fees for the Group are $8.00 per annum payable prior to the May AGM.

WESTERN AUSTRALIAN REPEATER LISTINGS COMPILED MARCH 1984

2 M	AREA	CALLSIGN	FREQ	TIME OUT	WATTS	RANGE (KM)	ASL (M)	SITE	SPONSOR	STATUS
Ch1	Bunbury	VK6RSW	6650					Bunbury	South West Amateur Radio Group	P
Ch2	Perth	VK6RAP	6700	3	40	80	360	Roleystone	WA Repeater Group Inc	O
Ch2	Albany	VK6RAL	6700					Albany	Southern Electronics Group	T
Ch2	Wickham	VK6RWK	6700			50		Wickham	Wickham Amateur Radio Club	O
Ch2	Wyndham	VK6RWH	6700					Wyndham	VK6GU + WA Repeater Group Inc	O
Ch3	Perth	VK6RTH2	6750	5 sec				Tic Hill	WA Repeater Group Inc calling Ch	O
Ch4	Perth	VK6RTH	6800	5	40	100	230	Tic Hill	WA Repeater Group Inc	O
Ch4	Albany	VK6RAA	6800	3	40	100	420	Mt Barker	Southern Electronics Group	O
Ch4	Karratha	VK6RWP	6800			50		Karratha	North West Radio Socy — Karratha Ch	O
Ch5	Exmouth	VK6REX	6850					Tower Zero	North West Radio Socy	O
Ch5	Kambalda	VK6RKB	6850					Kambalda	Kalgoorlie Repeater Group	O
Ch6	Bunbury	VK6RBY	6900	5	25	150	520	Mt William	WA Repeater Group Inc	O
Ch6	Mt Newman	VK6RMN	6900			25		Mt Newman	North West Radio Socy — Newman Ch	T
Ch7	Perth	VK6RPD	6950	3	40	70	70	WAIT Bentley	WAIT Amateur Radio Club	O
Ch7½	Emergency	VK6REE	6975						WA Repeater Group Inc Secondary Ch	O
Ch8	Emergency	VK6REE	7000						WA Repeater Group Inc Primary Ch	O
Ch8	Wagin	VK6RAW	7000	5	25	80	400	Mt Latham	Great Southern Repeater Group	O
Ch8	Kalgoorlie	VK6RAK	7000	5	40	40	400	Kalgoorlie	Kalgoorlie Repeater Group	O
Ch8	Geraldton	VK6RGN	7000	5	15	100	400	Geraldton	Geraldton Amateur Radio Club	O
Ch8	Port Hedland	VK6RNW	7000			35		Port Hedland	North West Amateur Radio Society	O
Ch10	Perth	VK6RWC	7100	5				Doubleview	West Coast Amateur Radio Club	O
Ch12	Cataby	VK6RCT	7200					Cataby	WA Repeater Group Inc	P
Ch13	Boddington	VK6RMS	7250					Mt Saddleback	WA Repeater Group Inc	P
Ch14	Eneabba	VK6REN	7300					Ocean Hill	WA Repeater Group Inc	P
Ch15	Busselton	VK6RBN	7350					Busselton	WA Repeater Group Inc	P
Ch9	Perth RTTY	VK6RTY	7050					Nedlands	AARTG	P
6 m	Perth	VK6RSM	53 2 in 53.8 out					Tic Hill	WA Repeater Group Inc	O
70 cm	Perth	VK6RUF	433.525 in 438.525 out					Roleystone	WA Repeater Group Inc	O
ATV	Perth	VK6ROD	Vision in 426 25. out 579.25. Sound in 431.75. out 584 75						WA Repeater Group Inc	P

STATUS O - OPERATIONAL
P - PROPOSED
T - TESTING

AR

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LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

INTERNATIONAL QUERY

I am an engineer in metallurgy working in the quality control department of a Flemish steel plant, SID MAR; radio amateur ON1GR; responsible for the club paper of the local radio club; interested in history of radio in all parts of the world amateur radio and broadcasting; collecting old radio sets; collecting magazines and books both old and new dealing with those subjects also club papers. Maybe there are amateurs among your readers who can give me a hint to find something.

I want to come in contact with amateurs working in the industry steel plants, ore mines, etc. all over the world, in order to publish a club paper for them.

I thank you very much in advance.

Marc De Moor,
Vredestraat 13, B-9720 De Pinte, Belgium, Europe.

AR

STOLEN EQUIPMENT

During March last our club room, within the grounds of the Springwood High School, was broken into and the club's HF transceiver was stolen. To date it has not been located, nor has anyone responsible for the theft been apprehended.

The club wishes to publicise its loss and also to alert readers in case stolen property is offered for sale.

The transceiver was a Kenwood TS 520S serial number 810804. There are no distinguishing features, and it was not fitted with a microphone at the time of the theft.

Sadly, in recent times our commercially made vertical HF antenna covering 80–10 metres has been stolen from the roof of the school building (no mean feat) and wire antenna has been pulled down. Notwithstanding our club membership stands at 62 and we are in the process of merging with the local Commodore Computer user's club which has a number of amateurs in its ranks.

John Dunn
Secretary
Blue Mountains ARC,
Box 54,
Springwood, NSW 2777

AMATEUR RADIO MAGAZINE

Amateur Radio magazine has come in for somewhat a severe caning here in VK6 over the last year or so. It was suggested that AR should combine with ARA magazine, which I find unbelievable, as it was suggested at a WIA meeting.

As far as I am concerned, there is "no contest" between AR and ARA. "Amateur Radio" is "OUR" magazine for WIA members and ARA is fulfilling a commercial need.

Our magazine is an excellent publication and I particularly enjoy Bill Blitheringtwit, VHF News, Pounding Brass, Listening Around and DX News.

Long live AR.

Yours faithfully,

Graham Rogers VK6RO,
18 Banksia Street,
Bunbury, WA. 6230.

AR

MARINE RADIO

Leafing through a yachting magazine recently, I was startled to come upon a letter from a licensed amateur advocating that a portion of our bands be given away. Specifically, that cruising yachtsmen, licenced to at least novice level, be allocated 15 kHz of the 14 MHz band for marine use. (VK2VMU writing in letters to the editor — Cruising Helmsmen — April 1984 issue).

What he/she failed to mention is the concern in amateur radio circles caused by the proliferation of unlicenced marine mobiles using the amateur allocation.

Every amateur is duty bound to facilitate emergency traffic and presumably no-one would object to amateurs who also happen to be yachtsmen, exchanging marine scuttlebut. However, it is vital we point out to yachtsmen that unless they are licensed, they are unwelcome.

Failure to do so will result in more anarchy and/or a creeping takeover.

Yours faithfully,

Peter O'Brien, VK2YZD,
27 Park Avenue, Chatswood NSW 2067.

AR

FRIENDLY RADIO

I would like all members to know that the spirit of amateur radio is not dead. The Victorian President Mr Jim Linton VK3PC was alerted to my husband and myself's intended visit to Bendigo recently and he graciously arranged for the local amateurs to show us the sights of Bendigo. I would like to express my thanks to Jim VK3PC and to all amateurs including Joan VK3NLO, Graeme VK3AGS, Margaret VK3DML, Charlie VK3WC, Murray VK3DOV and Bryan Roberts for their untiring efforts to make our stay a memorable one. 73.

Austine Henry, VK3YL,
1377 Dandenong Road, Oakleigh, Vic. 3166.

AR

FACE VALUE

I am sure the theme of this letter has been printed before, but persistence will, perhaps, be rewarded with positive results. I have been quite frustrated by the numerous typographical errors appearing throughout the pages of this publication, and other radio orientated magazines. Printer's errors no doubt, and in most cases quite obvious as to true meaning. However, errors in formulae and phrases of a technical nature may not be so easily identified until one has repeatedly "blown up" various devices by taking the printed word at face value.

I draw your attention AR Vol. 52, No. 4 April 1984 Page 43. Question 33 lists various colour-code combinations for a 4500 ohm resistor none of which are correct, but the answer on page 56 is given as 33(A) viz: Yellow violet red silver. This is the code for a 4700 ohm resistor, most probably what was intended in the question. Then there is another boo-boo in Question 44 to which the answer is given as (D). Wrong! The answer is (A).

In reference to the above errata, may I ask —

1) Are these simply frustrating printers' errors?
2) Are the answers supplied independently by the columnist, VK3KT?
or 3) Are these the official answers supplied by the examining authority?

If the responsibility lies in my third choice, I am most concerned, as many hopeful candidates could, and probably have, received a "fail" due to such instances. A friend of mine with considerable electronic prowess recently received a sixty eight percent fail in the LAOCP examination (Feb '84). He was shocked. When I showed him the above questions and answers he was very upset and wondered if such a circumstance cost him his pass mark.

However I do enjoy reading AR and look forward to receiving it each month.

Sincerely,

A Roocroft, VK5ZN,
41 Harvey Avenue, Salisbury 5108.

Ed. Comment: As to the "errata" mentioned — the first mentioned brings to mind the old advice of — Read the Question.

Reply to letter from A Roocroft.

I would like to thank all those who have commented on this paper. Most of the comments have been answered privately. However, I would like to summarise answers to the above queries.

1. *Q 33. There is no error. The stem of the question says the resistor tests as 4 500 Ω, is probably colour coded: 4 500 Ω* is well within the 10 percent tolerance given for a resistor coded 4 700 Ω *(4230-5170). I think it is fair that novices should be aware of this range and recognise preferred values.*
   Q 44. I must admit error there somewhere — probably my bad writing — my humblest apologies.
2. *Answers were supplied by me.*
3. *The papers which have been published as coming from the Education Officer have nothing to do with any examining authority. They are provided as a service to intending candidates and class organisers. They are however approved by DOC as being as similar as possible to the official papers. Other sample papers are available from VK3KT on request.*
4. *I would be very surprised if errors such as the one(s) quoted were responsible for failures in the official exam. Even if it passed some of the checking procedures, it would rapidly become apparent to the marker.*

Once again, many thanks to those who have made effort and time to criticise these papers. If any members would like to try writing some original questions for use in sample papers, I would be happy to receive them.

Brenda M Edmonds, VK3KT
(Federal Education Officer)

AR

THE SWEET SOUND OF CODE

The comments by Bruce Devenish, VK1BUB in AR April '84 will no doubt cause many to relive the agony of sitting for the AOCP Morse code test and induce some to break into a sweat at the very thought of it all.

Bruce says, *"When it came to 'those terrible five minutes', I simply wrote down the characters as they turned up"*. Now that he has passed the test, I don't know if VK1BUB intends to pursue A1 to a standard of semi-professionalism or give CW away altogether in favour of some other mode. However, let me tell him emphatically that should he decide to persevere, the sweat and strain of concentration will gradually disappear. Also, the laborious writing down of each character as it strikes the ear will give way to a musical sequence of piping dit dahs. These will form images in the mind, or words that will automatically flow off the end of one's pencil —and the only difficulty that might occur is the ability to write fast enough.

Maximum legible scribble for most is in the vicinity of 40 WPM and *perfect* code sent at this

speed is quite easy to copy — anything less than perfect and it becomes indecipherable. This speed is a "piece of cake" for those able to work an electronic keyer or board and, if full use is made of abbreviations, it is in effect as fast as the RTTY mode.

To be a member of HSC (High Speed Club), it is necessary to demonstrate proficiency of at least 30 WPM maintained for a period of a half hour (no more than cruising speed for those competent in code).

At these speeds, or faster, one does neither consciously hear nor slavishly copy each letter. Instead, the sounds become similar to someone speaking in syllables or groups, eg th, con, par etc — and the recipient is copying the text from two words to a whole sentence behind. Coupled to this is the ability of the brain to make endless options during a QSO — as against a computer RTTY which has to be programmed to function within certain limits.

How long does it take to achieve this proficiency, which is really nothing more than learning to speak another language fluently? Some years at least! RTTY, I am told, can be mastered in six months — but, think of the difference in limitations! Demonstration of ability brings its own reward — and nothing is more rewarding than the work of a first class CW operator. It is sad to think that code may be discarded eventually by future administrators of our hobby.

Those who quit the code in that "terrible five minute zone", as described by Bruce VK1BUB, are in reality selling themselves short. Somewhere in the region between 10 and 15 WPM there is an obstacle to and delay in increasing one's speed (commonly referred to as "the hump"). It may take weeks of practice to get past it — but, once over "the hump", a whole new vista of speed and ease of copy opens out.

At first, both lobes of the brain are required to arduously decipher Morse code, hence the "terrible five minutes zone". As speed increases, however, and the mind becomes more conditioned, one lobe of the brain partially drops out making the interpretation easier and more automatic. So, why not give yourself a break — persist with A1 mode and find an horizon and pleasure you never knew existed!

A Shawsmith, VK4SS
35 Whynot Street, Westend, Qld 4101
AR

OVERSEAS MAGAZINE DELIVERY

A letter has been received from Richard Hoffmann VK3XBF concerning difficulties with delivery of an overseas magazine. The matter has been noted and letters written both to Richard and the magazine concerned.

The Editor. **AR**

LONG LIVE MORSE

I am stirred into action by a letter from Gordon McDonald, VK2ZAB, published in AR of April 1984.

It surprises me that some people (worse, some people who should know something about radio communications) refer to CW as a "dead" or "decrepit" mode of transmission.

There are many conditions under which CW is the only mode of transmission allowing effective communication. Most amateur operators never have to compete with tropical cyclone-induced thunderstorms and/or bad propagation and/or jamming or other interference, but often these factors combine to make any form of voice transmission totally unreadable. Under such circumstances, manual or machine CW remains the only reliable form of communication. Sometimes it is not possible to use even machine (automatic) Morse code; there is to this day no better signal processing device for signals of this kind than the human brain.

It is a great pity that some amateurs use their equipment as a kind of short range public telephone. They deny themselves the opportunity to experience radio as a hobby at it's most rewarding.

I would point out that maritime radio services all over the world still use manual Morse for a very good reason — in many circumstances it is the only usable mode. 73.

Colin de Kantzow,
42 Nelson St, Gordon, NSW 2072.
AR

BACK TO AMATEUR, AMATEUR RADIO?

The use of radio stations in the amateur service shall, as a general rule, be confined to *"technical investigations, research into or instructions in radio communication techniques WITHOUT PECUNIARY INTEREST"*.

No ruling is given in the matter of sponsorship of amateur radio clubs by trade organisations for pecuniary interest.

In recent years there has been a clearly discernable trend towards seeking trade sponsorship, in respect of repeater equipment, now manufactured and readily available.

Two recent examples are the Cowell Repeater — VK5REP and VK3ROU receives a new repeater.

The article presented by Mr Brian Warman VK5BI, in part, under the sub-title SPONSORSHIP reads, *"The next stage was to try for some commercial sponsorship" (!)*

Why was it considered necessary to seek commercial sponsorship?

Amateurs seeking donations, monetary or material from commercial sources had better beware that they do not contravene the "no pecuniary interest rule".

Unconditional sponsorship is a myth. Dictated voting and free publicity are real.

The motives underlying the provision of the Icom repeater for VK3ROU being commercial, must envisage ultimate commercial advantages for Icom. The terms of the special agreement between Icom and the Victorian Division should be published in full.

Perhaps future Federal President, Mr J Linton VK3PC could kindly arrange this for interested members' benefit.

George Harmer VK4XW,
M WIA (Qld),
35 Rutland Street, Coorparoo, Qld 4151.
AR

NOVICE ARTICLE!!

A note of appreciation to all those who contacted me with commendatory remarks relative to my article "Clandestine SWLing" in AR March '84.

This was quite unanticipated — per telephone, letter and of course radio — from VK1-2-3-4-5-7, both amateur and non-amateur.

Some amateurs and AR have suggested a second contribution and I am considering this.

Congratulations to AR Publications Committee and Betken Productions for the professional standard of presentation of a novice produced article — other intending contributors, take heart!

Sincerely,

Reg Glanville, VK2ELG,
63 Buffalo Crescent, Thurgoona, NSW 2640.
AR

HELLSCHRIEBER

Are there any amateurs interested in Hellschrieber transmission and reception? I have a complete Hellschrieber printer which I have restored and is working but no-one to have a QSO with.

Interested amateurs may care to contact me.

Thanks.

Richard Hope, VK3DLJ
53 Seymour Road
Elsternwick, Vic 3185
AR

RE — HIGHER POWER

I operate nightly on the International Assistance and Traffic Net at 1130 UTC, on 14.303 MHz linking Australia with the third party traffic networks of the USA and Canada using a Log periodic antenna in suburban Sydney.

Imagine, the US net controller says *"Turn up your power I can't hear you"* — but I can't, I am already at the legal 400 Watt level — then how annoying to hear a perfectly readable voice saying *"Sorry Sam, can't hear you. Can you check in again tomorrow"*.

Believing that we can further improve Australia's amateur service and that we should be able to provide as good a service as those of other countries I suggest AOCP unrestricted amateur licencees be granted the same privileges as those permitted to our US counterparts ie 1 KW output CW, AM, FM and 1.5 KW PEP SSB output.

Interference? It does not matter if 1 watt or 1000 watts causes the interference, the actions to be taken are in our regulations book so this is no argument against. *Better antennas?* We all want the best but have to settle for a compromise.

Allowing the higher power means that in an emergency Australian amateurs would have the facilities of their station developed to the forefront of available amateur equipment and technology.

We are heading towards the eleven year solar minimum.

Only the very best of amateur radio stations operating low frequencies 1.8 to 10 MHz will be able to continue functioning as part of world-wide networks during this period when high power will be one of the important factors in successfully maintaining daily links with overseas stations.

Yours faithfully,

Sam Voron, VK2BVS,
2 Griffith Avenue, Roseville NSW 2069

Editors Note: This letter has been shortened Correspondents should endeavour to keep letters brief. **AR**

MM PIRATES

Ted Gabriel's letter was timely and well directed. The fellow's enthusiasm is acknowledged, but woefully short on experience with only two years or so amateur radio activity. Far short of the operating ability required to distinguish the Goodies and the Baddies when working MM blokes.

Running or relaying nets is a job for experienced personnel, and blithely giving weather and position reports to all and sundry callers, does not make a Net Controller Better he join WICEN or SES for more background.

This MM pirating is now getting too much out of bounds, to just work somebody who says they are VK so and so MM. Emergencies are best dealt with by people with the required background as Ted says.

Wal Stone VK2LW,
10 Trafalgar Road, Tuross, NSW.
AR

AUSTRALIAN TRAFFIC NET

The Australian Traffic Net (ATN) and the International Assistance and Traffic Net (IATN) are both cohesive, well controlled, flexible and compatible with third party nets in at least twenty two countries. The manual for ATN operators is extremely comprehensive including WICEN format.

IATN/ATN and WICEN format differ, because the roles of WICEN and ATN are different.

WICEN's primary role is the provision of communications to and from authorities and agencies.

The ATN role is to handle routine messages during normal times, and to provide communications assistance in times of need for the general public.

ATN continual self training/discipline is extremely helpful to operators who cannot participate in WICEN exercises, as basic message handling skills are gained.

The IATN's most recent involvement with welfare traffic was Grenada (refer 'Grenada Diary' QST Dec 1983).

The 1984 call book states *"The best practice in passing messages is to pass real messages" (p. 120).*

The ATN welcomes constructive criticism as it helps to keep a net at peak performance. Destructive criticism is disregarded.

I invite VK4YG and any other licensed amateur to write to me with any questions about the ATN. Alternatively any station is welcome to participate in the ATN on 3.5700 MHz±QRM at 1030 UTC seven days a week.

Yours faithfully,

One of the ATN net controllers,
Ken Richards VK3KPR,
2/15 Neilson Street, Bayswater 3153.

AR

TRAFFIC NETS!

So VK4YG (letters Apr AR) considers the idea of the Australian Traffic Net (ATN) and the International Assistance and Traffic Net (IATN) handling emergency communications as *"laughably ridiculous"*.

I wonder what the many hundred people, and some official bodies who had their vital messages passed by the ATN during the telephone system breakdown of 1981 would say to that? (see AR Aug 1981)

The IATN did dutiful work handling welfare traffic during the Grenada affair. (see QST Dec 1983)

And what about the Italian earthquake of 1980 when both organised and casual participation by amateurs provided a tremendous national and international message handling service? (see QST 1981)

VK4YG refers to us as *"fragmented, untrained and undisciplined"*. Perhaps it is a matter of degree? I have had the *minimum of communications training"* he suggests, as a driver/radio operator during army service. In a comparison of my unit with the ATN the latter comes off much better than he would ever believe!

During emergencies official radio channels may be unavailable; what then? *"WICEN will help"*, says VK4YG. Great! But their demonstrated international capability at least, is only similar to the ATN's.

While more co-operation between WICEN and ATN is desirable the former's recognised role is to help official agencies; but who helps Mr Average? His communication problems are just as real to him and his family. This is where the ATN and IATN come in. The scope here for improving the image of amateur radio and giving public service is enormous. This applies to normal times also; it's not a temporary effect.

As for incompatibility of formats; all the many countries active in third party nets use the ARRL format. The choice for the ATN seems obvious. An unbiased reading of the SET report will show that VK2BVS is not trying to force anything on anyone.

Our hobby is becoming less the realm of the experimenting radio amateur and more the domain of the social radio operator. I think it essential that we demonstrate our national and international message handling capabilities to those who licence us and allocate our frequencies. I urge the reader to join us on 3.570+QRM, 1030 UTC every day. Help the net practice, deliver messages, originate messages, act as relay. Participate and learn.

SAE for further details and message form. Yours sincerely,

VK2BBT,
7 Rugby CL., Wyoming, Gosford 2250.

AR

COMMENT

I wish to comment on the letter headed "Ref 'WICEN NEWS' Jan 1984' in April AR (84) by Ted Gabriel, VK4YG

I am forced to put pen to paper in order that the real purpose of the Australian Traffic Net (ATN) be clarified once and for all.

Firstly, let me say that in the past I have tolerated this man's ill-informed comments both in print and on air. I find his attitude and conduct completely incompatible with that of a responsible WICEN member.

The SET exercises to which he refers in fact provide valuable training in the skills of message handling under pressure and in a situation sometimes involving weak signals and QRM

The "non-standard" system of communications he refers to is uniformly used throughout the USA, Canada and Australia, and between the multitude of countries that the USA has Third Party agreements with.

The ATN has never sought to compete with or replace any part of the workings of WICEN. WICEN provides an excellent communications system which in emergencies, will link and assist co-ordination between government services etc, such as Police, Ambulance, Fire Brigade, Red Cross and so on. During an emergency, or immediately after it, there is another communications requirement, which is also important in its own right — Health and Welfare communications between concerned and affected members of the public. The ATN provides this service and as such complements WICEN.

During genuine emergencies it has been shown time and again that AR is the only remaining communication available. Whilst RTTY may be used in a QRM free situation, it is fairly easily garbled. Perhaps, as AMTOR makes more inroads into AR this could fulfil a much needed role in emergency communications.

Lastly, allow me to point out that the International Assistance and Traffic Net with whom the ATN liaises is an arm of the ARRL and conforms to the requirements of that organisation. If Mr Gabriel wishes to alter the system currently in use by the IATN and throughout America, perhaps he should write to the ARRL

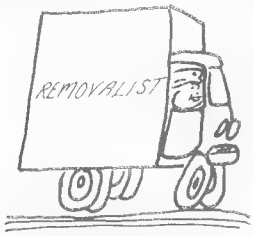
The ATN is indeed a "compatible" service in the true sense of the word.

Bill Main, VK6ZX,
WA Traffic Co-ordinator, ATN.
Box 463, Kalgoorlie 6430.

Editors note: This letter has been edited

AR

CHANGE OF ADDRESS OR CALL?



When you change your address or call sign ALWAYS remember to notify the WIA.

If possible please include your recent magazine address label.

Mail your letter to: The Secretary, WIA Federal Office, Box 300, Caulfield South, Vic 3162.

This is most important for us to keep our records up-to-date and to ensure you receive your magazine without interruption.

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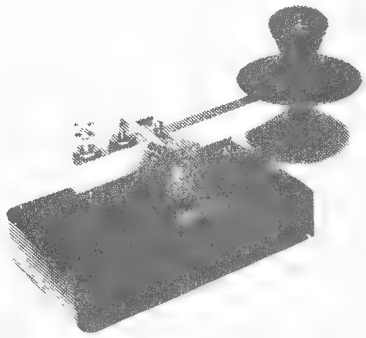

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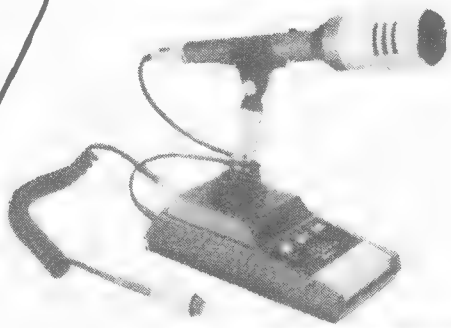

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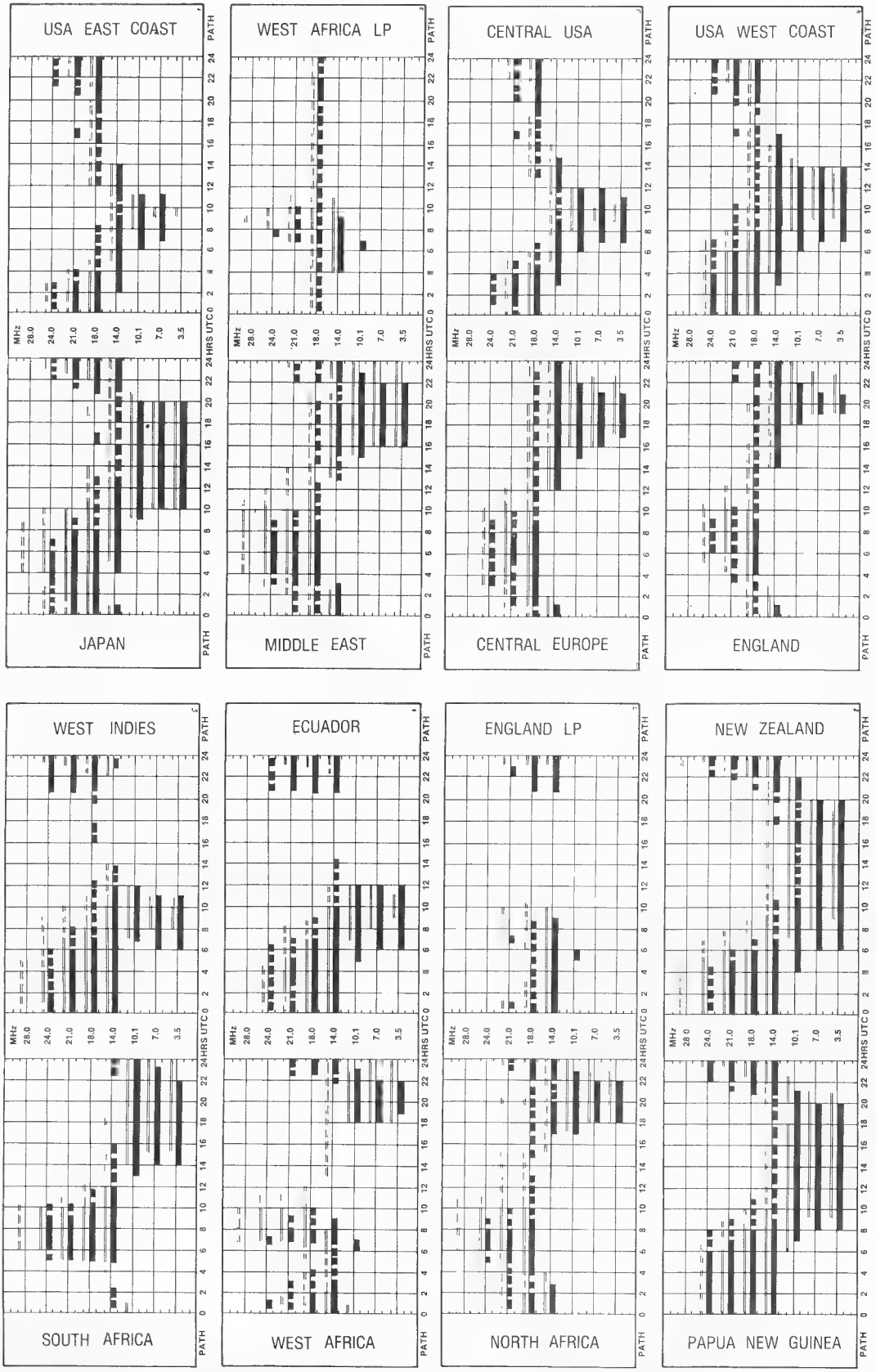
Len Poynter VK3BYE



LEGEND

From West Australia (PERTH).
From East Australia (CANBERRA).

Better than 50% of the month but not every day (continuous lines).

Less than 50% of the month (short broken lines).

Mixed Mode: Dependent on angle of radiation (long broken lines).

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ALL TIMES IN UNIVERSAL TIME CO-ORDINATED.

Obituaries

FRED ADAMS. VK4AID/VK2ID

17 July 1916 — 24 February 1984

Fred passed away in Toowoomba after a long illness at the age of sixty seven. He obtained his licence on 27th August 1947 (Certificate No 257) and became VK2ID (Itchy Dogs) situated in the shopping area of Wentworthville.

In 1959 he moved his family to Caloola Road, Wentworthville — a spot overlooking the Sydney Harbour Bridge — a great Amateur Spot! From that spot he was widely known for his outstanding signal which emanated from the 22 metre steel lattice tower he built himself. Fred designed a carriageway up the side of the tower to enable him to raise and lower his many aerials and beams — experimenting in beams, long wires etc being his great interest in amateur radio. His first transmitter was a disposal unit — AT20 — followed by numerous home brew rigs, a Hammarlund Super Pro (Ser 200) plus many more up to his most recent rig, a Icom IC 730.

He was for many years a member of The Old Timers' Club.

VK2ID became VK4AID in October 1980 — first settling in Capalaba near Cleveland then moving to Toowoomba where he became a member of the Darling Downs Radio Club and although not very active on the bands he enjoyed the fellowship of the local amateurs.

During his active years he worked numerous DX stations. One of his prized contacts being with HRH Prince Talal Al Saud, Ryiadah, Saudi Arabia. The QSL card from this contact being hand delivered by the local Post Office.

Fred took an active interest in Scouting always participating in Jamboree on the Air. He was the Tartoola District Badge examiner for radio and associated skills.

Fred is survived by his wife Peg, son Roger and daughter Patricia.

Eric Wissemann, VK4NEW. **AR**

RICHARD JOHN SMITH VK2AIU

Richard John Smith VK2AIU passed away on the 14th November 1983, aged seventy four.

Richard was a very early amateur, his certificate was dated in 1937, and a member of the WIA since 1944.

Although due to illness he was unable to set up his amateur station as well as he would have liked in later years he was a very active listener and enthusiast until his passing.

Richard loved to talk radio with anyone who would listen and encouraged many a "budding amateur". He had collected over 735 QSL cards from overseas amateurs over the years.

Richard was interested in radio from boyhood. A Mr Stevenson from Maroubra commenced operation as 2UW from his home close to Richard's home in the early 1920s and Richard built his first crystal set, with earphones, so that he and his family could listen to 2UW's music.

He then went on to valve sets etc. He qualified from Marconi as a Second Class Commercial Operator in 1956 and served as a radio officer on the ships Nilpena and Marra.

Richard held a TV receiver servicing certificate which he attained from Sydney Technical College in 1961. He retired to the Gold Coast in 1972 from AWA Marine Section in Leichhardt, NSW.

Richard will be sadly missed by the many friends he made during his long interest in amateur radio.

(Miss) Florence E Smith. **AR**

TELEPRINTER HANDBOOK

2nd Edition

This new edition endeavours to cover the basics of RTTY practice among amateurs and to bring up to date the work that the editors of the previous edition did for amateur RTTY, also for many professionally concerned with radio teleprinting.

Still in ample supply are the latest ARRL International and USA Call Sign Books.

These books and many more may be purchased from your divisional office or from Magpubs — the book sales department of the Federal Office — Box 300, Caulfield South, Vic. 3162.

NOTICE

All copy for inclusion in August 1984 Amateur Radio must arrive at Box 300, Caulfield South, 3162 no later than midday 25th June.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

*** Please insert STD code with phone numbers when you advertise.**

- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

TRADE HAMADS

Conditions for commercial advertising are as follows: The rate is $15 for four lines, plus $2 per line (or part thereof) minimum charge $15 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

AMIDON FERROMAGNETIC CORES: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 SASE TO: RJ & US IMPORTS, Box 157, Mortdale, NSW 2223. (No enquiries at office: 11 Macken Street, Oakley, 2223).

WANTED — NSW

CIRCUIT DIAGRAMS for CPRC-26 VHF walkie-talkie & WS-62 HF txcvr. Will pay copying & postage charges or will swap photocopy of WS-&" H'book for circuit of same. John Faulkner, VK2DVW, PO Box 57, Bexley North, NSW 2207.

DRAKE L-7 AMPLIFIER, DL-1000 dummy load, MN-2700 antenna tuner, PS-7 power supply, hand mic, Kenwood HC-10 ham clock, Palomar Engineers R-X noise bridge, control box for CD-44 rotator. Leave a message on (042) 28 7455, ext 265. BH.

GENERATOR-20A12V or similar. Prefer good order, reasonable price. Also old model engines or odd types (Stirling cycle, etc). Noel May, VK2YXM, QTHR. Ph: (02) 871 3079.

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WANTED — VIC

FOR COLLINS 75J4 rx, mechanical filters for 1.4 kcs & 3.1 kcs. Type # are F500B-14 & F500B-31 respectively. Also want BC-453A or B low frequency Command rx in any cond. Dick, VK3DLJ, QTHR. Ph: (03) 528 3380.

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KINGSLEY AR-7 WWII communication rx, complete or parts. Also the instruction book and schematic diagram. M Haagsma, VK4VIB. Ph: (07) 284 7739.

WANTED — TAS

TOWER suitable for 15 m yagi. VK3NWY (VK7???). Ph: (004) 27 8115.

FOR SALE — ACT

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FOR SALE — NSW

AWA MTR-25B VHF-HI FM-25 W txmrs $10 (hybrid) rxs $15. Stephen, VK2ESG, QTHR. Ph: (046) 81 9675 AH.

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YAESU FRDX-400/FRLX-400 $400. FLDX-2000 amp $200. Heath antenna HN-31 1 kW dummy load with meter $50. QM-70 28/144 MHz valve transverter. Offers? Layfayette KT-320 rx 320 $45 ONO. Osker SWR-200 $50. SSTV slow persistance 28-CM picture tube. E-26 orange. Any offer. MBM 88 el/70 cm J beam $100. Homebrew 9 el/2 m antenna. Any offer. 2 only 1.2 m dia fibreglass parabolic reflectors. Ex commercial. TV — make an offer. WWII, type A, mark 3 txcvr in working order with ins book. Offers please. Model 110 power, SWR field strength meter. Offers? VK3BAX, QTHR. Ph: (052) 9 7401 after 6 PM.

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FOR SALE — WA

FT-75B VXO txcvr, as new with basic crystals & DC power pack. Purchased & tested for potential amateur & never used. $400 ONO. (091) 87 1074.

YAESU FT-707 HF txcvr. Yaesu FP-707 power supply. In orig boxes. Owners H'books & mic. Will negotiate regarding price. Both together or separately. VK6TB. Ph: 271 0364.

YAESU SEPARATES, FLDX-400 tx 240 W AM, LSB, USB, CW. FRDX-400 rx has built in 2 m & 6 m converters plus AM, FM, LSB, USB. Both exc cond in orig boxes. $175 each or exchange both for Yaesu HF linear amp. Gerald, VK6AGT, QTHR. Ph: (098) 41 1385 or (098) 41 5240.

FOR SALE — TAS

TELEREADER CWR-610E Morse decoder as new $140. Yaesu desk mic, new $25. VK7OM. Ph: (004) 25 3178.

YAESU FT-200 HF txcvr with FP-200 power supply $275. VK3NWY (VK7???). Ph: (004) 27 8115.

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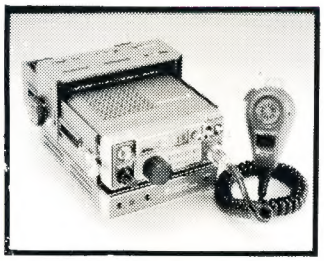
C-58E MULTI MODE



- *4 MHz coverage.*
- *25, 12.5, 5.1 kHz and 100 Hz channel steps.*
- *Channel memory for frequency and mode.*
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- *Multi purpose meter.*
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$404 + $12 P&P

The Standard C-58 features ALL MODE operating using advanced micro-processor control. Yet it is still as compact as 12.9 x 5.2 x 19.05cm and as light as 1.25 kg. Even at this size and weight Standard have not sacrificed high performance for portability.

An example of the C-58E's superior performance is reflected in the fact that use is made at N channel cascade MOS FET's to provide a sensitivity of 0.22 uV for 12 dB SINAD.

Thus you can enjoy VHF ALL MODE operation anytime anywhere anyhow. The C-58E comes from a future generation, but you can enjoy it now at today's prices.

ACCESSORIES

CPB-8E 25 Watt slimline linear — **CLC-8** vinyl carrying case — **CMB-8** Mobile bracket for C-58E and CPB-58E — **G-58** 5/8 wave telescopic antenna.

Write for full details now!

SPECIFICATIONS

GENERAL

Frequency..... 144.0000 ~ 147.999 MHz
Type of emission FM (F^3), SSB (A^3J), CW (A^1)
Frequency stability (room temperature ..... + − 300 Hz within
Power supply.....External: 13.8 VDC
Internal: 1. UN-3 Ni-Cad battery x 10
2. UM-3 dry cell x 9
Operating supply voltage range 9.6 — 16 VDC
Power consumption
FM reception standby 90 mA
Non-signal SSB and CW 90 mA
Transmission: 600 mA
(at 1 W into 50 ohms load)
Memory back up: 40 ohms load)
Antenna impedance..... 50
Dimensions 129 (W) x 52 (H) x 190.5 (D) mm
Weight 1.25 kg (1.45 kg including batteries)

TRANSMITTER

Power output..... 1 W
Conducted spurious emissions.....60 dB
Carrier suppression..... 40 dB
Undesired side band suppression.....40 dB
Maximum deviation..... + − 5 kHz

RECEIVER

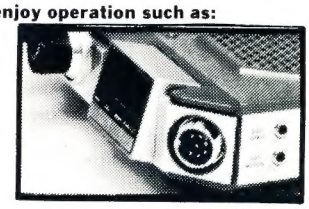
Reception system
FM: Double super heterodyne
SSB and CW: Single super heterodyne
Intermediate frequency FM: 1st IF 10.7 MHz
2nd IF 455 kHz
SSB and CW: 10.7 MHz
Sensitivity..... FM: 0.354 uV (20 dB QS)
0.223 uV (12 dB SINAD)
SSB and CW: 0.15 uV (10 dB S/N)
Selectivity (60 dB)..... FM: 25 kHz
SSB and CW: 4.2 kHz
Threshold squelch Sensitivity (FM) 0.112 uV
Spurious response 70 dB
Intermodulation spurious response (FM) 40 dB

SLIM & SIMPLE C8900E 2m FM MOBILE

$505 + $12 P&P

10 WATTS, 144 to 148 MHz FM, 0.15uV SENSITIVITY AND ONLY 31cm THICK

- ★ High sensitivity design with GaAs FET for an ultra low noise RF amplifier, providing high sensitivity and excellent reception with high selectivity.
- ★ Stable transmitter circuit ensuring safe operation even for a long continuous transmission duty cycle.
- ★ Capable of frequency memorizing up to any 5 frequencies.
- ★ Dual frequency shift (±600KHz) for shifting the transmission or reception frequency upward by 600KHz for wider repeater application.
- ★ All-scan offering various ways to enjoy operation such as:
  1. To scan frequencies within the MHz range displayed (scanning with 1MHz).
  2. To scan between desired frequencies (Program scanning).
  3. To scan all 2MHz or 4MHz frequencies (all frequency scanning).
- ★ Built-in MHz key to select frequency of 144 MHz or 145 MHz, or 145 MHz or 147 MHz.



WRITE FOR A BROCHURE

SPECIFICATIONS

GENERAL

Frequency range..... 144 — 148 MHz
Power supply.....DC 13.8V
Antenna impedance..... 50 ohms
Polarity.....Minus grounding only
Dimensions...138(W) x 31(H) x 178(D) m/m
Weight.....1.1 Kg

TRANSMITTER

RF output power..... 10 watt
Spurious emission..... 60 dB
Maximum deviation ..... + − 5 KHz

RECEIVER

Type of reception... Double superheterodyne
Intermediate frequency... 1st IF 10.7 MHz
2nd IF 455 kHz
Sensitivity (12 dB SINAD)..... 0.15 uV
Threshold sensitivity..... 0.85 uV
Selectivity..... More than 60 dB
Audio output..... 2 watt at 10% distortion

AUSTRALIAN DISTRIBUTOR
GFS ELECTRONIC IMPORTS Division of GD & JA WHITER PTY. LTD.

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ICOM IC-R71A

The Best Just Got Better

ICOM introduces the IC-R71A 100KHz to 30MHz superior-grade general coverage receiver with innovative features including keyboard frequency entry and wireless remote control (optional).

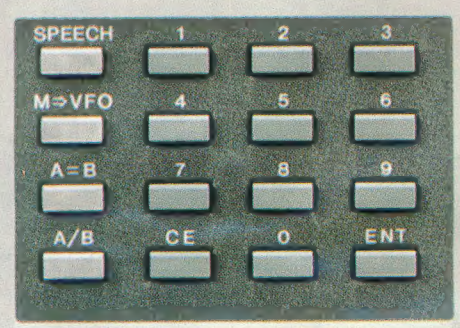
This easy-to-use and versatile receiver is ideal for anyone wanting to listen in to worldwide communciations. Demanding no previous shortwave receiver experience, the IC-R71A will accommodate an SWL (shortwave listener), Ham (amateur radio operator), maritime operator or commercial operator.

With 32 programmable memory channels, SSB/AM/RTTY/CW/FM (optional), dual VFO's, scanning, selectable AGC and noise blanker, the IC-R71A's versatility is unmatched by any other commercial grade unit in its price range.

Superior Receiver Performance. Utilizing ICOM's DFM (Direct Feed Mixer), the IC-R71A is virtually immune to interference from strong adjacent signals, and has a 100dB dynamic range.

IC-RC11 Infrared Remote

Passband tuning, a deep IF notch filter, adjustable AGC (Automatic Gain Control) and noise blanker provide easy-to-adjust clear reception, even in the presence of strong interference or high noise levels. A preamplifier allows improved reception of weak signals.



Keyboard Entry. ICOM introduces a unique feature to shortwave receivers... direct keyboard entry for simplified operation. Precise frequencies can be selected by pushing the digit keys in sequence of frequency. The frequency will be automatically entered without changing the main tuning control. Memory channels may be called up by pressing the VFO/M (memory) switch, then keying in the memory channel number from 1 to 32.

VFO's/Memories. A quartz-locked rock solid synthesized tuning system provides superb stability. Three tuning rates are provided: 10Hz / 50Hz / 1KHz.

32 Tunable Memories. Thirty-two tunable memories, more than any other general coverage receiver on the market, offer instant recall of your favorite frequency. Each memory stores frequency, VFO and operating mode, and is backed by an internal lithium memory backup battery to maintain the memories for up to five years.

Options. FM, synthesized voice frequency readout (activated by SPEECH button), RC11 wireless remote controller, CK1 DC adapter for 12 volt operation, MB12 mobile mounting bracket, two CW filters FL32 — 500Hz, and FL63 — 250Hz, and high-grade 455KHz crystal filter FL44A.

Discover a new deal with
ICOM AUSTRALIA PTY. LTD.
7 DUKE STREET WINDSOR 3181 VICTORIA, AUSTRALIA
TEL: (03) 529 7582 TLX: AA 35521 ICOMAS

ICOM
The World System

WARNING: When purchasing an ICOM unit please confirm you are dealing with an **Authorised ICOM Dealer,** as the ICOM Warranty applies **only** to units supplied by **ICOM Australia Pty. Ltd.** to Authorised ICOM Dealers. All stated specifications are approximate and subject to change without notice or obligation.

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